

# Service Manual

**ViewSonic G790-2**  
**Model No. VCDTS21430-2**

***19" Digital Controlled Color Monitor  
Graphics Series***



**(Rev. 1 - November 1999)**

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## **Revision History**

<b>Revision</b>	<b>Date</b>	<b>Description Of Changes</b>	<b>Approval</b>
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## TABLE OF CONTENTS

PRECAUTIONS AND SAFETY NOTICES .....	PREFACE
1. GENERAL INFORMATION & SPECIFICATIONS .....	1-1~1-5
2. DISASSEMBLY INSTRUCTIONS.....	2-1~2-3
3. THEORY OF OPERATION.....	3-1~3-5
4. ADJUSTMENTS.....	4-1~4-5
5. TROUBLESHOOTING.....	5-1~5-11
6. PCB LAYOUT DRAWINGS .....	6-1~6-3
7. SCHEMATIC DRAWINGS.....	7-1~7-3
8. EXPLODED PARTS VIEW & PARTS LIST.....	8-1~8-3
9. COMPONENT PARTS LIST.....	9-1~9-11

# Preface

## Before You Start

### General Safety Precautions

1. Use an isolation transformer in the power line and AC supply to troubleshoot.
2. When servicing, observe the original lead dress, especially in the high voltage circuits. If a short circuit is found, replace all parts which have been overheated or damaged.
3. Potentials, as high as 25kV are present when this display is in operation. Operation of the display without the rear cover involves the danger of a shock hazard from the display power supply. Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the picture tube to the display chassis before handling the tube.
4. After servicing, be sure to check the items listed in the Safety Checkout, below before returning the serviced unit to the customer.

### Safety Checkout

The following checks must be made after correcting the original service problem and before the unit is returned to the customer.

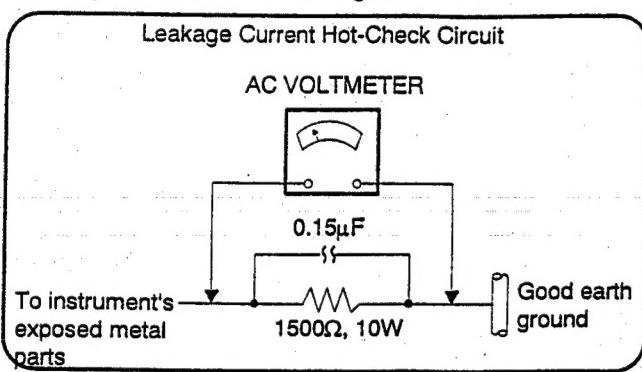
1. Check the area of your repair for unsoldered or poorly soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the inter board wiring to ensure that no wires are pinched or coated with high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps and mounting hardware have been replaced. Make absolutely sure you have replaced all the insulators.
4. Look for any unauthorized replacement parts, particularly transistors, that may have been installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. After making any repair, check the B+ and HV to see whether they are at the values specified. Make sure your instruments are accurate; if your HV meter always shows a low HV, check the meter to ensure it is not malfunctioning.
8. Carry out the leakage current checks as detailed below overleaf.

### Leakage Current Cold Check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Turn on the display power switch.
3. Use an ohmmeter to measure the resistance value between the jumpered AC plug and each exposed metallic cabinet part on the display, such as screwheads, terminals, control shafts, etc. When an exposed metallic part has a return path to the chassis, the reading should be between 240k and 5.2M. When exposed metal does not have a return path to the chassis, the reading must be.

## Leakage Current Hot Check

1. Plug the AC cord into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5k, 10 watt resistor in parallel with a 0.15F capacitor between each exposed metallic part on the set and a good earth ground (see How to Find a Good Earth, below) as shown in the diagram below.



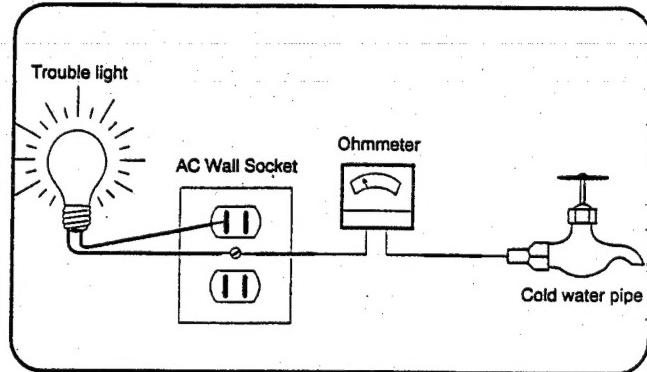
Example of Leakage Current Hot-Check Circuit

3. Use an AC voltmeter with 1000 ohms/volt or more sensitivity to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the polarity of the AC plug in the AC outlet and repeat the above measurements.
6. The potential at any point should not exceed 0.75 volt RMS. A leakage current tester (Simpson Model 229, RCA WT-540A or equivalent) may be used to make the hot checks.

Leakage current must not exceed 0.5 milliamp. If a measurement is outside of the specified limit, there is a possibility of a shock hazard and the monitor should be repaired and rechecked before it is returned to the customer.

## How to Find A Good Earth

A cold water pipe is a guaranteed earth ground; the cover plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth ground, verify that it is at ground by measuring the resistance between it and a cold water pipe with an ohmmeter. The reading should be zero (0) ohms. If a cold water pipe is not accessible, connect a 60-100 watt trouble light (not a neon lamp) between the hot side of an AC power receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line. The lamp should light at normal brilliance if the screw is at ground potential



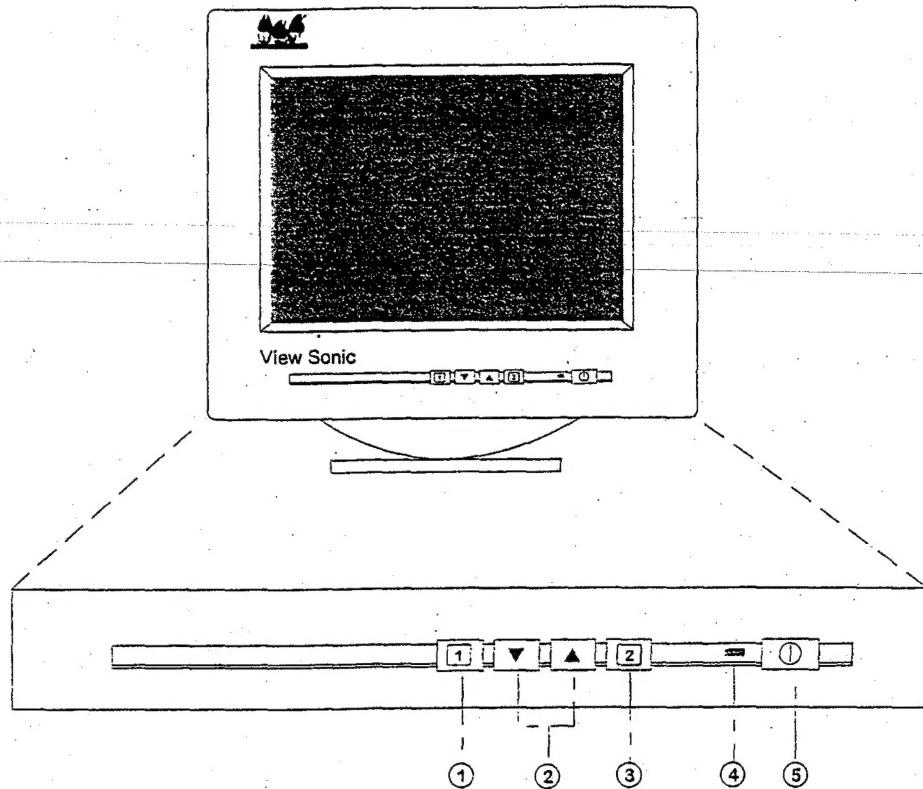
How to Check for Earth Ground

# **Section 1.**

## **Product Specification**

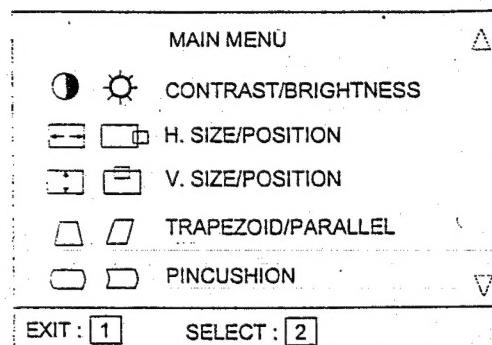
1.1.	Monitor Control Locations and Functions .....	1-1
1.2.	OnView® Main Menu, Part 1.....	1-2
1.3.	OnView® Main Menu, Part 2.....	1-2
1.4.	OnView® Main Menu, Part 3.....	1-2
1.5.	Product Overview .....	1-3
1.6.	CRT Characteristics .....	1-3
1.7.	Power Specifications.....	1-3
1.8.	Regulatory and Safety.....	1-3
1.9.	Video Input Signal Characteristics .....	1-4
1.10.	Sync Input Signal Characteristics .....	1-4
1.11.	Environmental .....	1-4
1.12.	Preset Timing Modes .....	1-4

## 1.1. Monitor Control Locations & Functions



ENO.	Description
1	Button[1] exits control screen or main menu and saves adjustments Button[1] displays main menu
2	[▲] and [▼] decreases or increases value of the selected [▼] and [▲] scrolls up and down main menu to highlight control (or control pair)
3	Button[2] displays control screen for highlighted control
4	Power light : Green=ON, Orange=Power saving mode
5	Power On/Off

## 1.2. OnView® Main Menu, Part 1



**NOTE :** To access similar controls using the ViewSonic® USB OnView Host software.

**NOTE :** Press [2] to toggle between all controls that appear on the Main Menu in pairs (for example, Contrast/Brightness).



**CONTRAST** adjusts foreground white level of screen image. Press [**▼**] or [**▲**] to adjust.

**Shortcut:** Before displaying the Main Menu, press [**▼**] or [**▲**] to display the Contrast control screen.



**BRIGHTNESS** adjusts background black level of screen image. Press [**▼**] or [**▲**] to adjust.



**H-SIZE** (horizontal size) adjusts width of screen image. Press [**▼**] decreases width, [**▲**] increases width.



**H-POSITION** (horizontal position) moves the screen image left or right. Press [**▼**] moves screen image left, [**▲**] moves screen image right.



**V-SIZE** (vertical size) adjusts the height of the screen image. Press [**▼**] decreases height, [**▲**] increases height.



**V-POSITION** (vertical position) moves the screen image up or down. Press [**▼**] moves screen down, [**▲**] moves screen up.



**TRAPEZOID** makes the vertical edges of the screen image parallel. Press [**▼**] narrows top and widens bottom, [**▲**] widens top and narrows bottom.



**PARALLELOGRAM** slants the vertical edges to the left or right. Press [**▼**] slants vertical edges to left, [**▲**] slants vertical edges to right.

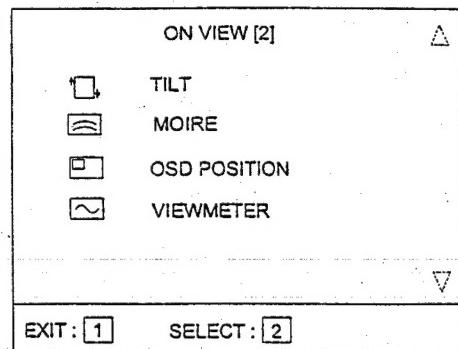


**PINCUSHION** straightens vertical sides of screen image. Press [**▼**] curves vertical edges inward, [**▲**] curves vertical edges outward.



**PIN-BALANCE** curves the screen's vertical edges to the left or right. Press [**▼**] curves vertical edges to left, [**▲**] curves vertical edges to right.

## 1.3. OnView Main Menu, Part 2



**TILT** rotates the entire screen image. [**▼**] rotates screen image counter-clockwise. [**▲**] rotates screen image clockwise. **NOTE:** To toggle between Tilt and Moire press button [2].



**MOIRE** reduces interference that causes unwanted color textures or patterns. **NOTE:** Only use Moire if you see ripples or waves when viewing images having closely spaced lines or finely detailed patterns. To return to factory settings use Memory Recall. Press [**▼**] or [**▲**] to adjust.



**OSD POSITION** gives you two options: H. OSD (Horizontal On Screen Display) Position and Vertical OSD Position.



**H. OSD POSITION** Press [**▼**] or [**▲**] to move the OSD left or right.

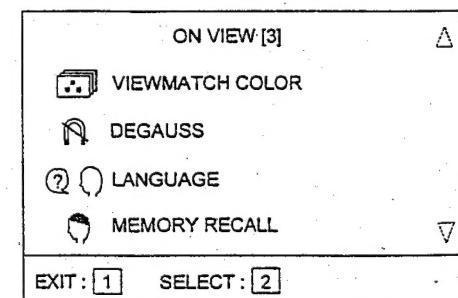


**V. OSD POSITION** Press [**▼**] or [**▲**] to move the OSD up or down.



**VIEWMETER®** displays the frequency signal input (horizontal scan and refresh rate) coming from the graphics card in your computer. See your graphics card's user guide for more details.

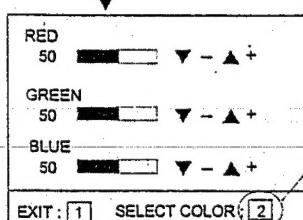
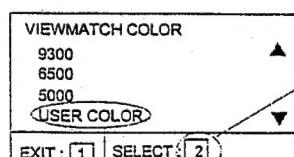
## 1.4. OnView Main Menu, Part 3



**Note:** To access similar controls using the ViewSonic® USB OnView Host software.



**VIEWMATCH® COLOR** provides four color adjustment options: three preset color temperatures and **USER COLOR** which allows you to adjust the red, green and blue individually. **NOTE:** The factory setting for the monitor is 9300K, the color temperature most frequently used in offices with fluorescent lights.



**USER COLOR Control Screen**

**DEGAUSS:** The monitor automatically degausses each time you turn it on, removing the buildup of magnetic fields that can affect color purity and convergence. To manually degauss, select the Degauss control from the OnView Main Menu (above). USB users can also use the Degauss control on the ViewSonic® USB OnView Host Main Menu.

**Important:** Do not degauss repeatedly. Doing so can be harmful to the monitor. Wait at least 20 minutes before selecting this control again.

**LANGUAGE** allows you to choose from among five languages for the OnView Main Menu and control screens: English, French, German, Italian and Spanish. To select a language, press [2].

**MEMORY RECALL** returns all controls (except User Color) back to factory settings for the video timing currently selected.

### 1.5. Product Overview

The monitor installed in the G790-2 (VTO-9A24/5/D/F) phom described in this service manual has the following features:

- 19 inches 0.26mm dot pitch conventional C.R.T
- 30~95kHz horizontal scanning
- 50~180Hz vertical refresh rate scanning
- 28 total memory modes in standard configuration
- Universal segmented auto range Power Supply
- VESA/NUTEK/EPA compliant power management

### 1.6. CRT Characteristics

Part # M46332Q683 x 301 / Manufacturer Hitachi. ViewSonic must approve, in writing, any change of CRT before implementation.

- Screen Size ..... 19"
- Diagonal ..... ≥18"
- Mask Type..... Shadow mask

- Pitch (D/H/V) ..... 0.26/0.22/0.15mm
- Transmission Percentage ..... ≤46% for H, 53.3% for S
- Faceplate Treatment ..... Anti-glare anti-static
- Implosion Protection ..... The CRT shall have implosion protection and will meet the requirements of UL-1418 and IEC-65.

### 1.7. Power Specifications

#### 1.7.1. Power Supply

- A/C Receptacle ..... IEC320
- Power Supply Type ..... Universal
- Power Cable Length ..... ≥1.83 meter
- A/C Line Voltage Ranges.... 88VAC to 264VAC
- A/C Line Frequency Ranges.. 50/60Hz±3Hz
- Leakage Current ..... ≤3.5mA
- Degauss ..... Automatic and Manual  
(20 minutes for a full recovery)

#### 1.7.2. Power Management

- Summary of operating states:

APM State	LED Color	Power Consumption	Automatic Recovery Time
On	Green	< 140 W	Not applicable
Standby	Orange	< 15 W	< 3 seconds
Suspend	Orange	< 5 W	< 10 seconds
Off	Orange	< 3 W	< 10 seconds

### 1.8. Regulatory and Safety

#### 1.8.1. North America

1. Regulatory Filing:  
Regulatory filing should be made under the "model Number-XY". X is series designation of 0~9, Y is region designation of A-Z. The model number is VCDTS21430-XY.

UL1950

DHHS Part21, Subpart J

FCC, Part 15, Subpart J, Subpart B

CSA 22.2 No.950-M1989

DOC, ICES-003, Class B

NOM

#### 1.8.2. International

EN60950 and GS Mark

TC095

PTB X-RAY

NEMKO, DEMKO, SEMKO, FIMKO

SETI

CE

CB Report

CB Certificate

BCIQ

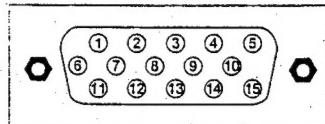
VCCI  
C-Tick (ViewSonic will applied)

### 1.8.3. ESD Immunity

The display will be tested to and meet the requirements of CISPR24 (4KV contact, 8KV air discharge).

## 1.9. Video Input Signal Characteristics

- Video Type ..... Analog
- Amplitude ..... 700mV maximum
- Video Input Impedance ....  $75\Omega \pm 1\%$
- Sync on Green ..... Amplitude:714mV maximum, sync on green amplitude:286mV maximum
- Optional DDC 1/2B video Connector Pin Assignments:



pin	Signal	pin	Signal	pin	Signal
1	Red video	6	Red return	11	Monitor GND
2	Green video	7	Green return	12	SDA
3	Blue video	8	Blue return	13	H. sync
4	Monitor GND	9	No pin	14	V.sync(VCLK)
5	No pin	10	Sync return	15	SCL

## 1.10. Sync Input Signal Characteristics

### 1.10.1. Separate Sync

- Sync Type ..... TTL
- Amplitude ..... 2.4V minimum (Logic High), 0.8V max. (Logic Low)
- Polarity ..... Positive or Negative
- Equalization pulses..... Not allowed

### 1.10.2. Composite Sync

- Sync Type ..... TTL
- Amplitude ..... 2.4V minimum(Logic High)  
0.8V max.(Logic Low)
- Polarity ..... Positive or Negative
- Serration pulses ..... Allowed at horizontal rate
- Equalization pulses..... Not allowed

### 1.10.3. Sync On Green

- Sync Type..... As per apple
- Amplitude..... 0V minimum(Logic High)  
-286mV max.(Logic Low)
- Polarity ..... Negative/Composite
- Serration pulses ..... Allowed at horizontal rate
- Equalization pulses..... Not allowed

## 1.11. Environmental

### 1.11.1. Temperature/Humidity/Altitude

#### OPERATING :

- Temperature..... 0°C to 40°C
- Relative Humidity ... 5 to 95%, non-condensation
- Altitude ..... -400 to 3000 meters

#### Non-OPERATING:

- Temperature..... -40°C to +60°C
- Relative Humidity ... 5 to 95%, non-condensation
- Altitude ..... -400 to 12000 meters

### 1.11.2. Vibration Test

- Vibration frequency... 5~250 Hz
- Acceleration..... 1.0G
- Sweep Time ..... 1 Oct/min
- Test Time ..... 60 minutes

### 1.11.3. Drop Test

- Drop Height..... 50.8cm
- Test Direction ..... 1 Corner, 3 Edges, 6 Faces

## 1.12. Preset Timing Modes

This display has 10 preset display modes configured during manufacture, given in the following table:

Mode No.	Hf.kHz	Vf.Hz	DotxLine
01	31.469	70.080	640x400
02	37.500	75.000	640x480
03	46.875	75.000	800x600
04	60.023	75.029	1024x768
05	49.725	74.550	832x624
06	68.680	75.060	1152x870
07	68.667	84.997	1024x768
08	79.976	75.025	1280x1024
09	91.146	85.024	1280x1024
10	93.75	75.000	1600x1200

**Notes**

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## **Section 2.**

# **Disassembly Instructions**

- |      |  |     |
|------|--|-----|
| 2.1. | Remove the Rear Cover .....                | 2-1 |
| 2.2. | Remove the Main Board and Neck Board ..... | 2-1 |
| 2.3. | Remove the Control Board .....             | 2-2 |

## 2.1. Remove the Rear Cover

1. Remove the four screws at the rear cover. Refer to the figure 2-1 (A).
2. Remove the rear cover.

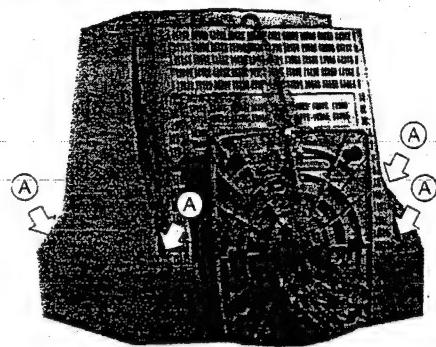


Figure 2-1 Remove the Rear Cover

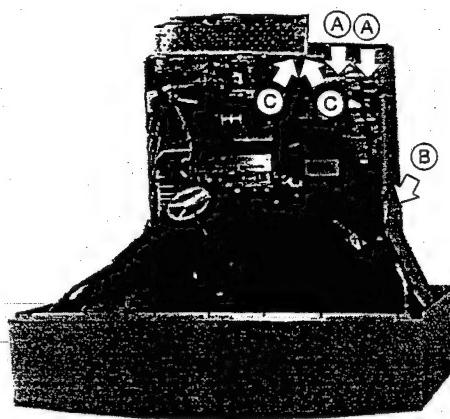


Figure 2-2 Remove the Main Board & Neck Board

## 2.2. Remove the Main Board and Neck Board

1. Disconnect the two connected pins from the main board. Refer to the figure 2-2 (A).
2. Remove the screw at the holder (R). Refer to the figure 2-2 (B).
3. Disconnect the two ground wires from the neck shield. Refer to the figure 2-2 (C).
4. Disconnect the two connected pins from the main board. Refer to the figure 2-3 (A).
5. Release the cord crammer from the FBT cover. Refer to the figure 2-3 (B).
6. Disconnect the ground wire from the neck shield. Refer to the figure 2-3 (C).
7. Remove the screw from the holder (L). Refer to the figure 2-3 (D).

### IMPORTANT NOTE

To avoid risk of electric shock, before removing the anode cap, make sure the anode has been completely discharged as high voltage may remain on the anode for extended time after power off.

8. Remove the anode cap from the CRT. Refer to the figure 2-3 (E).
9. Remove the eight screws. Refer to the figure 2-4 (A).
10. Remove the four screws from the neck shield. Refer to the figure 2-5 (A).
11. Remove the neck shield.
12. Remove the neck board.
13. Remove the main board.

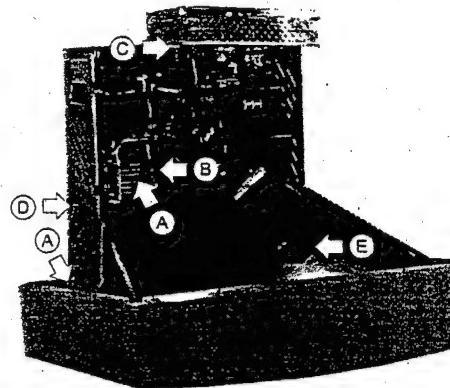


Figure 2-3 Remove the Main Board & Neck Board

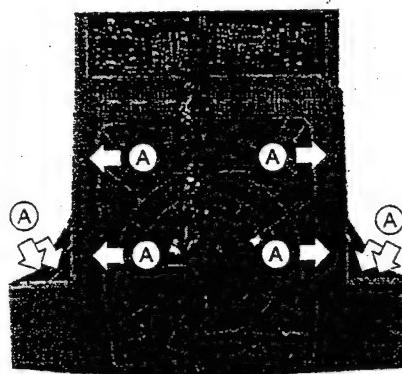
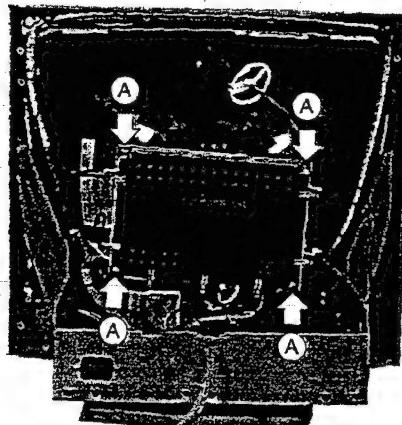


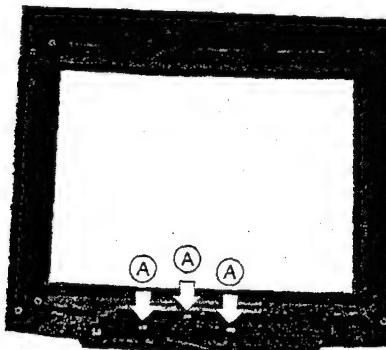
Figure 2-4 Remove the Main Board & Neck Board



*Figure 2-5 Remove the Neck Shield*

### **2.3. Remove the Control Board**

1. Remove the three screws from the control board. Refer to the figure 2-6 (A).
2. Remove the control board.



*Figure 2-6 Remove the Control Board*

**Notes**

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## **Section 3.**

# **Theory of Operation**

3.1.	Introduction .....	3-1
3.2.	Switching Power Supply .....	3-1
3.3.	The Deflection Circuit .....	3-2
3.4.	Video Amplifier .....	3-4

### 3.1. Introduction

The model plat form design meet plug and play, display power saving rule and full range sync capability and with a universal power supply which can be offer world wide requirement. The working rang as:

1. AC input: 90~265 Vac 47~63Hz.
  2. Horizontal frequency range: 30~95kHz.  
Vertical frequency range: 50~150Hz.
- The circuit block diagram show on figure3-1.

### 3.2. Switching Power Supply

The monitor used a universal range and flyback mode switching power which converter AC power to DC and supply 7Vdc voltage output. The output voltage detail are:

+6.3V	@ 1.25mA	Heater
15V	@ 1.25mA	uP/PLL IC/Vertical output/Control IC/Video per-amp
18V	@ 250mA	H-Driver
80V	@ 170mA	Video out
215V	@ 300mA	Hout. B+

The 5V and 12V supply is derived from 17V supply rail by means of separate voltage regulator. As this switching power is running on synchronous with horizontal deflection frequency, the sync signal pick up from retrace pulse of horizontal deflection output stage. See below figure3-2 for detail block diagram.

#### 3.2.1. Degaussing

The monitor is equipped a manual degaussing circuit making use of one duo PTC (PTC1) and relay control circuit. The degaussing is working on power on and OSD contol.

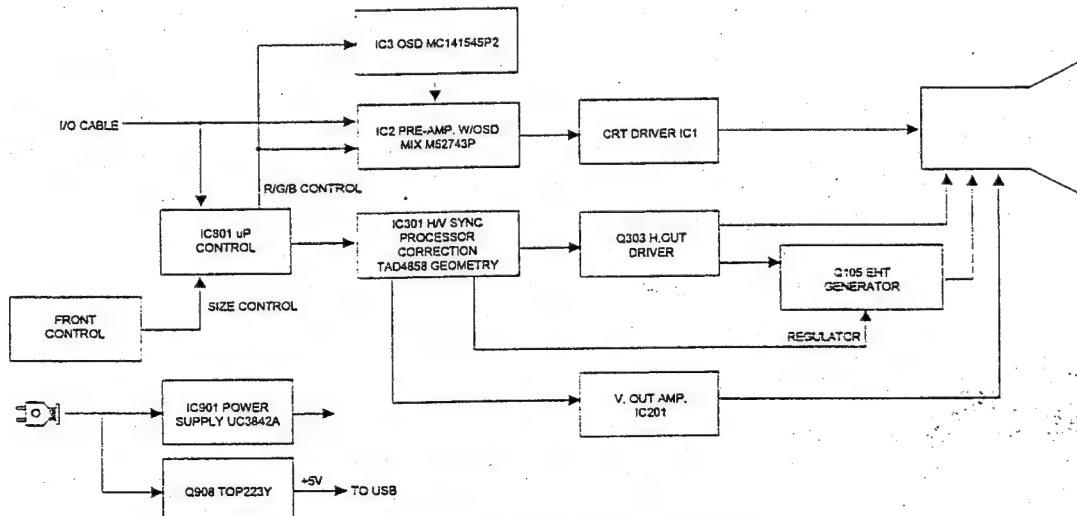


Figure 3-1 Block Diagram of Platform

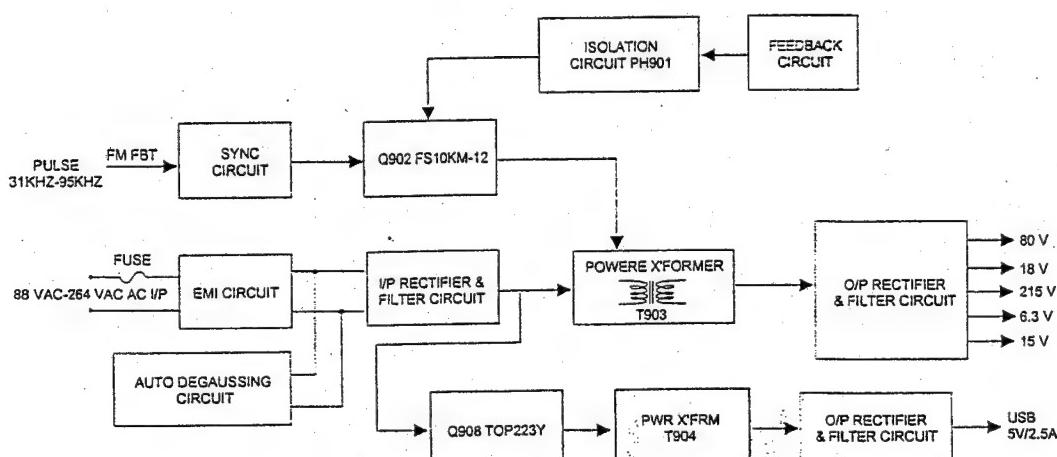


Figure 3-2 Switching Power Supply Block Diagram

### 3.2.2. Input Stage

1. EMI filter: T901, C932, C903, C901, C902, C904, C905. This portion for rejection conductive noise from switching power supply for meet agency rule requirement.
2. High harmonic frequency filter: This filter correct the poor current wave form for improved power line effective. The harmonic is meet JEIDA requirement which is T902.
3. BD901 is rectify from AC to DC voltage.
4. C907 is filter for average AC voltage into DC.
5. R901 is inrush current limits parts. The parts is negative temperature coefficient of resistance when power on units the input current limits by R901.

### 3.2.3. Flyback Converter

This power supply used current mode control and flyback mode converter for converter unregulated voltage into a stable voltage for secondary circuit used.

Current mode PWM control circuit:

IC901 (UC3842A): Current mode PWM control IC, with Power MOSFET whose works on sync mode, the frequency is same as horizontal deflection frequency.

Sync parts: D913, D914, R925, R924, R926, C944, C915, D932

Start up power: D903, C910.

Normal power supply: D928, C910, C948, L901, D907.

Power supply on power saving mode: D908, Q901, D923, C952, ZD901, R907, C911.

Voltage feedback: PH901, PH902, PH903.

### 3.2.4. Flyback Converter Circuit

T903: Flyback choke for storage energy and converter to output DC voltage power.

**Snubbers:** R906, R905, D905, D906, C908, C909.  
The sunbbers is for clamp peak voltage on switching time.

### 3.2.5. Secondary Output

**215 V output:** For horizontal deflection used, the voltage offer for DC converter to a follow frequency voltage which control by horizontal size. D925, D926 and C926.

**80 V output:** For video output amplifier used. D915, D916 and C926.

**17 V output:** For IC301 PLL, vertical output amplifier and tilt circuit. D918 and C928.

**6.3 V output:** For heater of CRT and tilt used. D919, C955 and R950.

**5 V output:** Supply uP control. This output must be keep stable voltage on any mode so the normal voltage supply from 15 volt and inpower saving mode the power will offer from IC902.

## 3.3. The Deflection Circuit

The deflection circuit including horizontal, vertical deflection and EHT circuit which working range is horizontal from 30 to 95kHz and vertical 50 to 150Hz. The circuits are control by IC801 microprocessor. See figure 3-3: Block diagram for more detail construction information.

### 3.3.1. Control IC301 (TDA4854)

The TDA4854 is a auto-sync deflection controller with fully DC voltage control. See figure 3-4 block diagram for more information. The TDA4854 provides sync processor, H+V synchronization with fully autosync capability. The sync range set up on horizontal 30 to 95kHz and vertical form 50 to 150Hz. Other function is geometry correction function vertical position, high and linearity control. Figure 3-4 Block diagram of IC301.

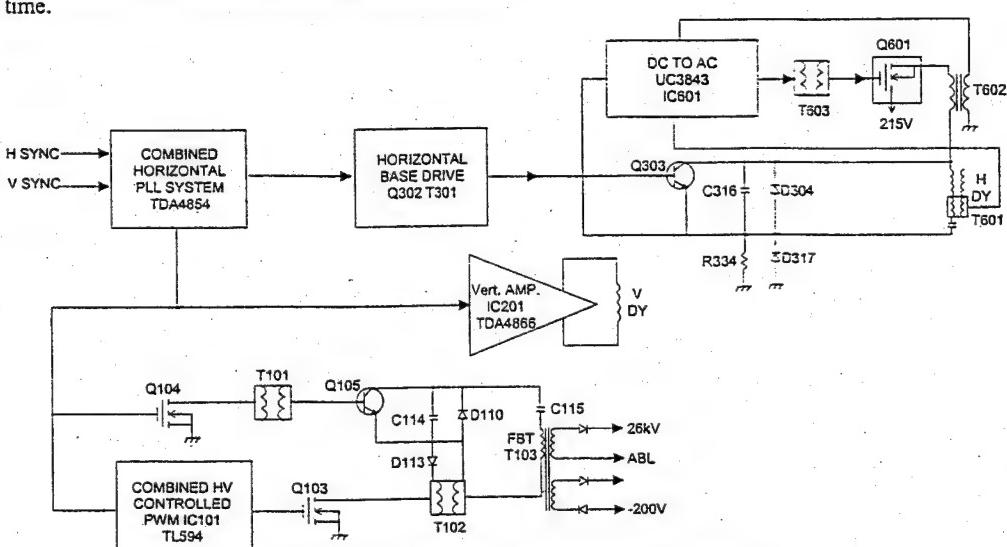


Figure 3-3 Deflection Circuit Block Diagram

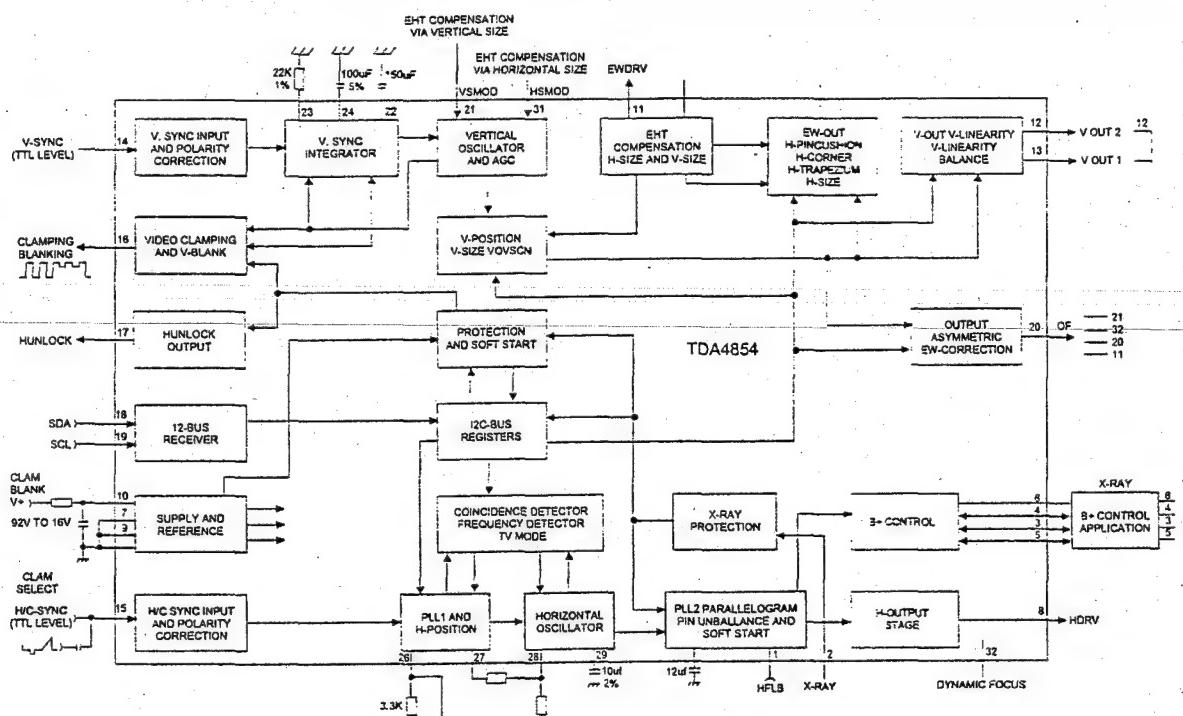


Figure 3-4 Block Diagram & Application of the TDA4854

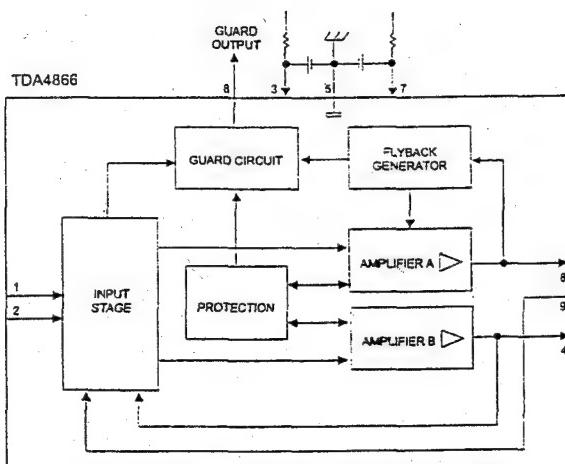


Figure 3-5 Block Diagram of TDA4866

### 3.3.2. Vertical output amplifier with TDA4866

The TDA4866 is a power amplifier for use in vertical deflection system for frame frequency 50 to 150Hz. The TDA4866 consists of a differential input stage, two output stage, a flyback generator, a protection circuit for output stage and guard circuit. Figure 3-5 Block diagram.

The differential input stage has a high CMRR differential current mode input (pin 1 and 2), the signal input form IC301 (TDA4854) pin 12 and 13.

Two output stage are current drive in opposite phase and operate in combination with the deflection coil in a full bridge configuration.

During flyback the flyback generator supplier the output stage a with flyback voltage.

The circuit makes it possible to optimize power consumption and flyback time.

The internal guard circuit provide a blanking signal for the CRT. The guard signal active HIGH:

At thermal overheat.

When feedback loop is out of range.

During flyback.

The snubber and dumper resistor for correction deflection waveform. R214, R213 and C202.

### 3.3.3. Horizontal B+ Converter

This DC converter provide a suitable voltage for horizontal deflection requirement which voltage is varying by frequency and size. So the deflection current sense by T601 which is converter current to voltage.

IC601 provide current mode PWM converter, the pulse width is proportional to horizontal size and pincushion and keystone geometry correction, the current feedback will be stable size depend on temperature and 215V B+ change.

Deflection current sense: T601

H-size control and geometry correction circuit: The correction wave form come from Pin11 of IC301, the wave form through R303, R369, R610 to Pin2 of IC601 for control pulse width of B+ converter.

Switching parts: Q601 is switching parts of B+ converter. The duty cycle is follow the H-size and E/W correction wave form.

Driving of switching parts: T603 is driving transformer which is coupling driving pulse from pin 6 of IC601 to gate of Q601.

Flywheel diode: D602 is flywheel diode which is working on recovery cycle of converter.

Converter choke: T602 is converter choke with voltage anode voltage generate.

### 3.3.4. Horizontal Output Stage

Horizontal output transistor: Q303 is output transistor.

Horizontal output driving: T301 and Q302 combination for take optimum driving condition of Ib1/Tb2 for Q303.

Dumper diode: D304

Current sensor: T601 is yoke current sensor and converter current to voltage and feedback to B+ converter pin 2 of IC601.

Horizontal linearity coil: L305 is horizontal linearity coil for correct right and left side as some as size by pin 3 of IC801.

S capacitor: C322, C362, C359, C367 and C390, those 5 capacitor cover full range linearity requirement and control by Q307 for C322 and Q330 for C362, Q333 for Q367 for C359. The separate range as:

	29K~34K	34K~36K	36K~38K	38K~45K	45K~49K
CS0	H	H	H	H	H
CS1	L	L	L	L	H
CS2	L	H	H	L	H
CS3	L	L	H	L	L
CS4	L	L	L	H	L

	49K~55K	55K~57K	67K~69K	69K~85K	85K~96K
CS0	H	H	H	H	H
CS1	L	H	H	H	H
CS2	H	L	L	H	H
CS3	H	L	H	L	H
CS4	H	H	H	H	H

CS1 : Q309/Q334/C359  
 CS2 : Q320/Q307/C322  
 CS3 : Q331/Q330/C362  
 CS4 : Q332/Q333/C367  
 CS0 : Q311/Q310/C382

### 3.3.5. EHT Regulator

This portion is regulating a stable anode voltage. The concept is modulate effect tuning capacitance to stable anode voltage. So the circuit used HRET signal to make a active pulse and pulse width modulated by anode voltage feedback voltage. As figure 3-6.

Anode voltage feedback by C104, R103, VR101, R114, C103, IC101. The VR101 adjust voltage to specify voltage of CRT. The HV pulse is synchronize through pin 8 of IC301, C308, R369, Q104, T101.

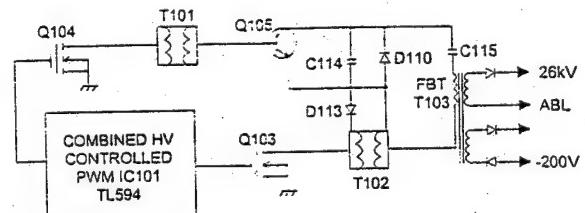


Figure 3-6 EHT Regulation Circuit Diagram

### 3.3.6. G1 and Blanking Circuit

G1 voltage supply from pin 10 of T301 which voltage around -178V then regulate by a 160V zener diode (ZD140).

Q141 is brightness control parts when user through OSD or front control key to adjust brightness intensity which uP will be through DAC (IC2) to modify G1 voltage then brightness will be follow up user adjustment to change.

Q140 is blanking control parts when timing mode change the uP (IC301) will pull up the blanking voltage to high level. When blanking on high level, Q140 is on then G1 will be go to around -160V and scan should be blanking. Once 2nd mode signal available the blanking signal will be go back to low level.

Q201, Q202 is vertical blanking pulse output parts. The vertical blanking pulse come from pin 8 of IC201 and pin 14 of IC301.

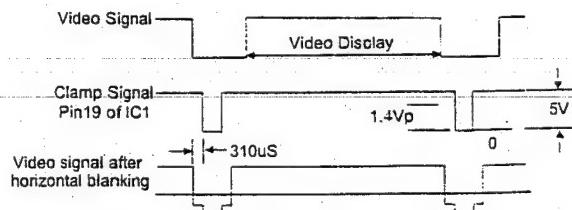
## 3.4. Video Amplifier

The RGB video and sync signals are supplied through a video cable directly to the Video Board at connector P1. The RGB signals are terminated in 75 ohms by R1, R2 and R3.

The RGB signals then enter an IC2 M52743SP video pre-amplifier, providing synchronous black level clamping, variable picture contrast (gain) and RGB gain balance for alignment. Separate gain control voltages for the three pre-amplifier channels are provided by the microcontroller via the I2C bus. These inputs enable the individual gains of each channel to be varied to allow channel gain balance. In addition, a common signal is applied on pin 15 of IC1 to adjust all three channels

by the same amount, to allow for overall gain or contrast control.

A synchronous clamping signal is derived from the horizontal sync pulse by Q6 and Q60. This takes the trailing edge of the horizontal sync pulse, differentiates it through C6 and R60, which is applied pin 19 of IC2. This timing is shown in Figure 3-7.



**NOTE:**  
A. Clamp signal is generated from horizontal sync pulse time.  
B. When the clamp signal is less than 1.4Vp-p, the IC's internal clamp loop will operate; when greater than 1.4Vp-p, it will not operate.

Figure 3-7 Timing of Pin 19 Clamp Signal

The outputs of the video pre-amplifier are fed to IC1, a discrete power amplifier circuit, through resistors R13, R23 and R33. In addition, on screen display video information generated by IC3 can be injected via pin13, 14, 15 of IC3 through pin4, pin9, and pin13 of IC2.

Amplifies the video signals to around 30Vpp. The outputs are AC coupled to the CRT cathodes via C13, C23 and C33. In order to bias the DC level of the cathodes correctly, the AC coupled signal is DC restored by clamping to a DC voltage which can be varied under microprocessor control. Considering Red channel output on IC2 as an example, the signal is clamped by pin 5 of IC4 to the voltage set by the transistor amplifiers formed by pin 13 of IC4, which amplify the adjustable voltage at the output of the DAC of IC2. A similar stage can be seen for the green and blue channel outputs.

When the video signal amplification circuit is added, this waveform will change as shown in figure 3-8 (a). Without the DC component, as shown in figure 3-8 (b), the DC level of darker and brighter displays will be different, so when this kind of signal without a DC component is sent to the CRT, it will cause the contrast of the image to change as the signal changes. Therefore IC4 serve as a DC clamp and the CRT's cathodes DC voltage can be adjusted by the pin23, pin24, pin25 of IC2 DAC.

IC3 is an On Screen Display processor. This is a simple video generation IC3 that has its own oscillator circuit. The oscillator circuit by using an internal Phase Locked Loop (PLL) the IC2 can sync to the incoming vertical and horizontal oscillator frequencies and produce the OSD video signals once initialized and loaded by the commands and data received on the I2C bus. When the OSD display is activated, the blanking output of the IC3 also sends a signal to the blanking input of IC2 (pin 1) to provide an optional black background for the OSD display.

The RGB signals are amplified to drive the CRT by an discrete amplifier and capacitively coupled to the cathodes.

Brightness control is achieved by varying the bias of G1 of the CRT. The bias is an output of the pin26 of IC2. Vertical blanking signals is coupled into G1 to prevent visible retrace lines.

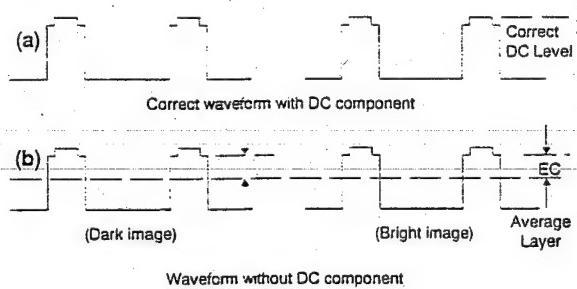


Figure 3-8 The Post Output Amplifier Circuit

## **Section 4.**

# **Setup Adjustments**

4.1.	Preparing the Display for Adjustment .....	4-1
4.2.	Adjustment Procedures.....	4-1
4.3.	High Voltage Verification.....	4-2
4.4.	Background Brightness Setting.....	4-2
4.5.	Screen Brightness Adjustment .....	4-2
4.6.	Magnetic Field Configuration .....	4-2
4.7.	Tilt Verification.....	4-2
4.8.	Focus Verification .....	4-2
4.9.	Color Misconvergence .....	4-3
4.10.	Primary Test Mode Performance Adjustment.....	4-3
4.11.	Performance Adjustments for All Preset Mode.....	4-3
4.12.	Image Performance Verifications .....	4-3
4.13.	Uniformity Verification .....	4-3
4.14.	Brightness Verification .....	4-3
4.15.	Display Size Stability.....	4-3
4.16.	Color Purity Verification.....	4-3
4.17.	Video Noise.....	4-4
4.18.	Power Saving Check.....	4-4
4.19.	DDC 1/2 Data Wirting .....	4-4

## 4.1. Preparing the Display for Adjustment

Before adjusting any the display settings or making final adjustments after service, perform the following pre-test settings to prepare the display for adjustment:

1. Be sure to allow the display to warm up for at least 30 minutes before making any adjustments.
2. When making tests and adjustments, the CRT should be facing east or west to minimize the affect of the earth's magnetic field.
3. Set the contrast control at 80% and the brightness control at 50% for all tests unless otherwise specified.
4. Thoroughly degauss the entire screen with a manual degausser before proceeding with tests.
5. All test should be performed with the rated power supply voltage unless otherwise specified.

### 4.1.1. Test Equipment Required

The following equipment will be required to make the tests and adjustments detailed in this section:

- Video signal and pattern generator
- Digital multimeter
- Degausser

## 4.2. Adjustment Procedures

### 4.2.1. Adjustment Sequence

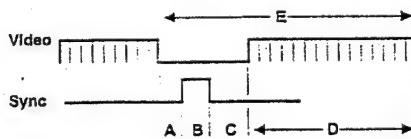
This display undergoes an automatic alignment procedure during manufacture. This alignment procedure follows a fixed sequence of adjustments which are duplicated in this section. When making manual adjustments during service, you should always make the adjustments in the order given here to ensure correct results.

### 4.2.2. Preset Timings Used During Adjustment

During alignment it is necessary to input certain preset timings stored in the display. The detailed parameters of all the preset timings are given in the table below for your reference.

#### IMPORTANT NOTE

The preset timings for different versions of this model may differ from those shown here. Be sure to check the list of preset timings for the unit being serviced.



Mode Number	Mode 1	Mode 2	Mode 3	Mode 4	Mod5	Mod6	Mod7	Mod8	Mod9	Mod10
Data Pixel	640	640	800	1024	832	1152	1024	1280	1280	1600
Data Line	400	480	600	768	624	870	768	1024	1024	1200
H. Freq.(kHz)	31.469	37.500	46.875	60.023	49.725	68.680	68.667	79.976	91.146	93.750
V. Freq(Hz)	70.080	75.000	75.000	75.029	74.550	75.060	84.997	75.025	85.024	75.000
Pixel Rate(MHz)	25.175	31.500	49.500	78.750	57.28	100.00	94.500	135.00	157.50	202.50
Hor. FP $\mu$ s(A)	0.636	0.508	0.323	0.203	0.559	0.320	0.508	0.119	0.406	0.316
Hor. Sync $\mu$ s(B)	3.813	2.032	1.616	1.219	1.117	1.280	1.016	1.067	1.016	0.948
Hor. BP $\mu$ s(C)	1.907	3.810	3.232	2.235	3.910	1.440	2.201	1.837	1.422	1.501
Hor. Active $\mu$ s(D)	25.422	20.317	16.162	13.003	14.524	11.520	10.836	9.481	8.127	7.901
Hor. Total $\mu$ s(E)	31.778	26.667	21.333	16.660	20.111	14.560	14.561	12.504	10.971	10.667
Ver. FP ms(A)	0.381	0.027	0.021	0.017	0.020	0.0437	0.015	0.013	0.011	0.011
Ver. Sync ms(B)	0.064	0.080	0.064	0.050	0.060	0.0437	0.044	0.038	0.033	0.032
Ver. BP ms(C)	1.112	0.427	0.448	0.466	0.784	0.568	0.524	0.475	0.483	0.491
Ver. Active ms(D)	12.711	12.800	12.800	12.7995	12.549	12.667	11.183	12.804	11.235	12.800
Ver. Total ms(E)	14.269	13.333	13.333	13.328	13.413	13.322	11.765	13.329	11.761	13.333
Polarity(H.V)	-,+/-,-/+	-,-/+,-/+	+,-/+,-/+	+,-/+,-/+	-,-/+,-/+	+,-/+,-/+	+,-/+,-/+	+,-/+,-/+	+,-/+,-/+	+,-/+,-/+

Primary mode are 79.976kHz/75.025Hz (1280x1024) and 93.750kHz/75.000Hz (1600x1200)

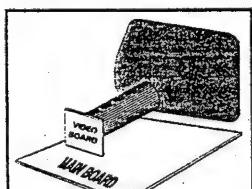
Table 4-1 Table of preset Timing Parameters

**IMPORTANT NOTE**

The adjustment settings in this section are based on REVISION B of the factory alignment procedures. Appendices detailing changes in the factory alignment procedures that have occurred since publication of this service manual are available upon request.

***Initial settings to be carried out manually prior to automatic alignment:*****4.3. High Voltage Verification**

1. Input a cross hatch pattern in primary mode and adjust VR101 (see figure 4-1 for approximate location) to get the high voltage is in the range  $25.5\text{kV}\pm 0.2$ .
2. Input a full white pattern in  $31.47\text{kHz}$  ( $640\times 480$ ) mode, check that the high voltage is in the range  $26\text{kV}\pm 0.2$ .



Location of PCBs

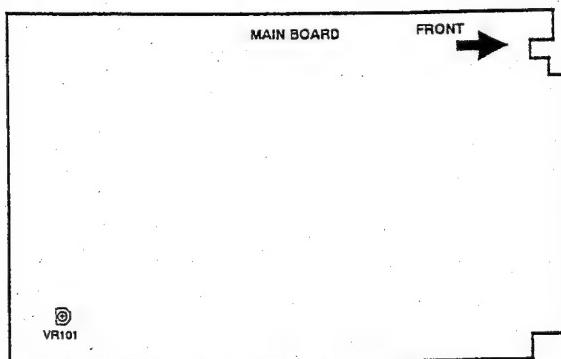


Figure 4-1 Location of on Main board

**Steps used in white balance adjustment:****4.4. Background Brightness Setting**

1. Input a raster pattern in primary mode and push the external brightness control button to maximum. Adjust the SCREEN VR so background brightness is approximately  $0.8\text{FL}\pm 0.2$ .
2. Before carrying out white balance adjustment, make sure that the display size and linearity are in spec.

3. Input timing in primary mode, and the white balance automatic adjust some item as blow.

- a) Input no video pattern in primary mode, and set-up brightness of raster white balance get the x,y value is  $x=0.346\pm 0.02$   $y=0.359\pm 0.02$ .
- b) Input a full white pattern in primary mode, and set-up 5000 degrees kelvin of picture white balance get the x,y value is  $x=0.346\pm 0.02$   $y=0.359\pm 0.02$ .
- c) Input a full white pattern in primary mode, and set-up 6500 degrees kelvin of picture white balance get the x,y value is  $x=0.313\pm 0.02$   $y=0.329\pm 0.02$ .
- d) Input a full white pattern in primary mode, and set-up 9300 degrees kelvin of picture white balance get the x,y value is  $x=0.281\pm 0.02$   $y=0.311\pm 0.02$ .

**4.5. Screen Brightness Adjustment**

1. Input a raster pattern (video off) in primary mode. Set external contrast key to maximum and push external brightness key to brightness is  $0.08\text{FL}$  (cut Off), then switch to a display of full white pattern and from CAS set-up internal contrast gain and check that brightness at the center of the screen is in the range  $34\text{FL}\pm 0.5$ .
2. Input a full white pattern in primary mode. Set external brightness and contrast key to maximum. Adjust ABL and check that brightness at the center of the screen is in the range  $42\text{FL}\pm 0.5$ .

***Conclusion White Balance Adjustment:*****4.6. Magnetic Field Configuration**

Configure the magnetic field as follows:

- Northern hemisphere :  $H=0.01$ ,  $V=0.45$
- Southern hemisphere :  $H=0.01$ ,  $V=-0.52$

**4.7. Tilt Verification**

Input a cross hatch pattern in primary mode and use the tilt rotation key to ensure that tilt is less than 2mm.

**4.8. Focus Verification**

1. Input a full white pattern in primary mode. Use the external brightness control to adjust background brightness so it is not visible and set external contrast so the brightness is  $30\text{FL}$ , then switch to a display of cross hatch pattern.
2. Adjust the FBT focus VR1 and VR2 so the vertical line and horizontal line are as clear as possible.

#### 4.9. Color Misconvergence

1. Input a full white pattern in primary mode and adjust external brightness so there is no background brightness and external contrast so the screen brightness is 30FL.
2. Switch to a cross hatch pattern and verify that misconvergence in a circle measured from the center of the screen (Area A) is not greater than 0.3mm, and for all areas outside Area A is not greater than 0.4mm.
3. If not in the specification, as following as below items.
  - a) Used the 4 pole and 6 pole magnetic in a CRT center adjustments for arrive to better color convergence.
  - b) After used the magnetic in a four corner adjustments for arrive to better color convergence.

##### **Automatic camera alignment procedure:**

The procedures listed below are those carried out using the automatic Camera Alignment System (CAS). These adjustments cannot be made manually but must be performed using the CAS software provided by the manufacturer.

#### 4.10. Primary Test Mode Performance Adjustments

1. **V. RASTER CENTERING**  
Raster area centered vertically in the bezel.
2. **H.RASTER CENTERING**  
Raster area centered vertically in the bezel.
3. **ROTATION (TILT)**  
Raster area aligned with bezel.

#### 4.11. Performance Adjustments for All Preset Modes

1. **H POSITION**  
Centers the picture display horizontally in the bezel area ( $|L-R| \leq 2\text{mm}$ ).
2. **H SIZE**  
Configures picture display width as  $360 \pm 2\text{mm}$  (primary), others : $360 \pm 3\text{m}$ .
3. **V POSITION**  
Centers the picture display vertically in the bezel area ( $|T-B| \leq 2\text{mm}$ ).
4. **V SIZE**  
Configures picture display height (primary preset) as  $270 \pm 2\text{mm}$ , others : $270 \pm 3\text{m}$ .
5. **Rotation**  
Configures picture display rotation as less than 2mm.
6. **PINCUSHION**  
Sets left and right pincushion distortion to less than 1.5mm.
7. **Trapezium**  
Sets upper and lower trapezium distortion as less than 2mm.

##### ***Conclusion of automatic alignment:***

#### 4.12. Image Performance Verification

Input each of the preset timings and check that the following specifications are met:

1. **Horizontal Position**  
 $|L-R| \leq 2\text{mm}$
2. **Horizontal Size**  
Primary preset : $360 \pm 2\text{mm}$ , others : $360 \pm 3\text{m}$ .
3. **Vertical Position**  
 $|T-B| \leq 2\text{mm}$
4. **Vertical Size**  
Primary preset : $270 \pm 2\text{mm}$ , others : $270 \pm 3\text{m}$ .
5. **Horizontal Linearity**  
$$\frac{|Max - Min|}{|Max + Min|} \leq 4\% \text{ (worse case} \leq 5\%)$$
6. **Vertical Linearity**  
$$\frac{|Max - Min|}{|Max + Min|} \leq 4\% \text{ (worse case} \leq 5\%)$$
7. **Recall Button Function**  
Adjust H/V phase and size at random using the external controls and press the recall button. Check that the image performance has returned to be in spec, which will indicate the recall button is functioning correctly.

#### 4.13. Uniformity Verification

Input a 2" square pattern in primary mode, set contrast to maximum and check that there is no overshoot. Check that the brightness in the four corners of the screen is not less than 75% of that in the center of the screen.

#### 4.14. Brightness Verification

1. Input a raster pattern (no video pattern) in primary mode. Adjust external brightness to 0.08FL (cut OFF).
2. Input a full white pattern and adjust external contrast to maximum then check that brightness at the center of the screen shall be more than  $32 \pm 2\text{FL}$ . Adjust external brightness to maximum and check that brightness at the center of the screen is less than 36FL.

#### 4.15. Display Size Stability

Input a full white pattern in primary mode, set external brightness at 5FL and measure the display size. Adjust the brightness to 30FL and remeasure the display size. The difference should be less than 3mm.

#### 4.16. Color Purity Verification

1. Input a full white pattern in primary mode and adjust external brightness so there is no background brightness and adjust external contrast to 25FL. Make a visual check of color purity as follows:

- Input the red (R) signal only; no green (G) or blue (B) should be visible.
- Input the (G) signal only; no (R) or B should be visible.
- Input the (B) signal only; no (R) or (G) should be visible.

#### 4.17. Video Noise

Input a cross hatch pattern or full white pattern in primary mode and make a visual check from a distance of 18 inches for any video noise or other on-screen interference.

#### 4.18. Power Saving Check

- Input cross hatch pattern in primary mode.
- Turn OFF H-Sync signal, the power indicator LED have to change the emitting color from green to orange, then turn ON H-Sync signal again, the picture shall be visible.
- Turn OFF V-Sync signal, the power indicator LED have to change the emitting color from green to orange, then turn ON V-Sync signal again, the picture shall be visible.
- Turn OFF H/V-Sync signal, the power indicator LED have to change the emitting color from green to orange, then turn ON H/V-Sync signal again, the picture shall be visible.

#### 4.19. DDC 1/2 Data Writing

Writing the DDC 1/2 data in EEPROM.

128 BYTES OF EDID CODE:

##### (1) Samsung CRT

	0	1	2	3	4	5	6	7	8	9
00	00	FF	FF	FF	FF	FF	FF	00	5A	63
10	4D	48	39	30	00	00	02	09	01	01
20	1E	25	1C	B9	E8	5E	82	A3	53	46
30	98	24	11	48	4F	FF	FF	80	31	59
40	45	59	61	59	71	4F	81	59	81	99
50	A9	40	A9	4F	00	00	00	FF	00	4D
60	48	39	30	32	31	32	33	34	35	0A
70	20	20	00	00	00	FD	00	32	B4	1E
80	5F	FF	00	0A	20	20	20	20	20	20
90	00	00	00	FC	00	56	69	65	77	53
100	6F	6E	69	63	20	47	37	39	00	00
110	00	FC	00	30	2D	32	0A	20	20	20
120	20	20	20	20	20	20	00	8C		

##### (2) Hitachi CRT

	0	1	2	3	4	5	6	7	8	9
00	00	FF	FF	FF	FF	FF	FF	00	5A	63
10	4D	48	39	30	00	00	02	09	01	01
20	1E	25	1C	C6	E8	46	72	A0	57	4F
30	97	26	9E	48	4F	FF	FF	80	31	59
40	45	59	61	59	71	4F	81	59	81	99
50	A9	40	A9	4F	00	00	00	FF	00	4D
60	48	39	30	32	31	32	33	34	35	0A
70	20	20	00	00	00	FD	00	32	B4	1E
80	5F	FF	00	0A	20	20	20	20	20	20
90	00	00	00	FC	00	56	69	65	77	53
100	6F	6E	69	63	20	47	37	39	00	00
110	00	FC	00	30	2D	32	0A	20	20	20
120	20	20	20	20	20	20	00	8C		

(08-09)

ID Manufacturer Name = VSC

(10-11)

Product ID Code = 4D48 (MH)

(12-15)

Serial Number = 12345

(16)

Week Of Manufacturer = 2

(17)

Year Of Manufacturer = 1999

(10-17)

Complete Serial Number (bar code label)=MH90212345

(18)

EDID Structure Version Number = 1

(19)

EDID Structure Revision Number = 1

(20)

Video input definition : Separate Sync,Composite Sync,Sync on Green,SETUP Analog Signal,0.700Vpp/0.300Vpp

(21)

Maximum Horizontal Image Size = 37 cm

(22)

Maximum Vertical Image Size = 28 cm

(23)

Display Gamma = 2.85 (for Samsung CRT)

Display Gamma = 2.98 (for Hitachi CRT)

(24)

DPMS Supported Feature: Stand By,suspend,Active off

Display Type = RGB color display

Chroma info : Samsung CRT

Chroma info : Hitachi CRT

(25-34)

For Samsung CRT :

Red\_x= 0.638, Green\_x= 0.276, Blue\_x= 0.143,

White\_x= 0.281

## G790-2 Service Manual

Red\_y= 0.325, Green\_y= 0.596, Blue\_y= 0.066,  
White\_y= 0.311

For Hitachi CRT :

Red\_y= 0.626, Green\_y= 0.310, Blue\_y= 0.149,

White\_y= 0.281

Red\_y= 0.340, Green\_y= 0.592, Blue\_y= 0.620,

White\_y= 0.311

(35)

Established timing I:

720 x 400 @ 70Hz (VGA, IBM).... YES

720 x 400 @ 88Hz (XGA2, IBM).... YES

640 x 480 @ 60Hz (VGA, IBM).... YES

640 x 480 @ 67Hz (MAC II, APPLE).... YES

640 x 480 @ 72Hz (VESA).... YES

640 x 480 @ 75Hz (VESA).... YES

800 x 600 @ 56Hz (VESA).... YES

800 x 600 @ 60Hz (VESA).... YES

Min. H-Sync Rate : 30 KHz

Max. H-Sync Rate : 95 KHz

(90-107)

Detailed Timing Description / Monitor Descriptor

#3 Monitor Name : ViewSonic G79

(108-125)

Detailed Timing Description / Monitor Descriptor

#4 Monitor Name : 0-2

EDID Checksum byte = (0x09).... OK (for Samsung CRT)

EDID Checksum byte = (0x8C).... OK (for Hitachi CRT)

(36)

Established timing II:

800 x 600 @ 72Hz (VESA).... YES

800 x 600 @ 75Hz (VESA).... YES

832 x 624 @ 75Hz (MAC II, APPLE).... YES

1024 x 768 @ 87Hz (interlace) (8514A, IBM) ....YES

1024 x 768 @ 60Hz (VESA).... YES

1024 x 768 @ 70Hz (VESA).... YES

1024 x 768 @ 75Hz (VESA).... YES

1280 x 1024 @ 75Hz (VESA).... YES

(37)

Manufacturer's reserved timing:

1152 x 870 @ 75Hz (MAC II, APPLE).... YES

Manufacturer's timing:

(Support for VESA DDC V1.0p rev:1.6p)

640 x 480 @ 85Hz (VESA).... NO

800 x 600 @ 85Hz (VESA).... NO

1024 x 768 @ 85Hz (VESA).... NO

1280 x 1024 @ 85Hz (VESA).... NO

1600 x 1280 @ 75Hz (VESA).... NO

1600 x 1200 @ 85Hz (VESA).... NO

EDID Ver 1,REV 0 FLAG.... NO

(38-53)

Standard Timing Identification:

#1: 640 x 480 @ 85Hz, Image\_Asp\_Ratio= 4:3

#2: 800 x 600 @ 85Hz, Image\_Asp\_Ratio= 4:3

#3: 1024 x 768 @ 85Hz, Image\_Asp\_Ratio= 4:3

#4: 1152 x 864 @ 75Hz, Image\_Asp\_Ratio= 4:3

#5: 1280 x 960 @ 85Hz, Image\_Asp\_Ratio= 4:3

#6: 1280 x 1024 @ 85Hz, Image\_Asp\_Ratio= 5:4

#7: 1600 x 1200 @ 60Hz, Image\_Asp\_Ratio= 4:3

#8: 1600 x 1200 @ 75Hz, Image\_Asp\_Ratio= 4:3

(54-71)

Detailed Timing Description / Monitor Descriptor

#1 Monitor serial Number : MH90212345

(72-89)

Detailed Timing Description / Monitor Descriptor

#2 Max. Supported Pixel\_clock : (0xff) Not Specified

Min. V-Sync Rate : 50 Hz

Max. V-Sync Rate : 180 Hz

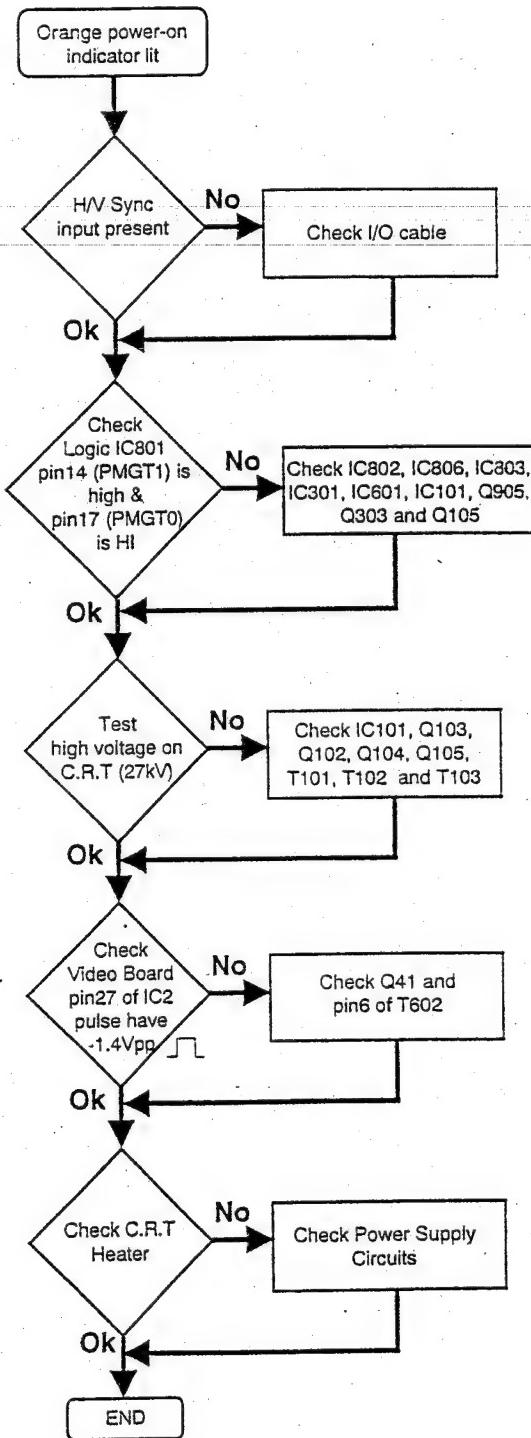
# **Section 5.**

---

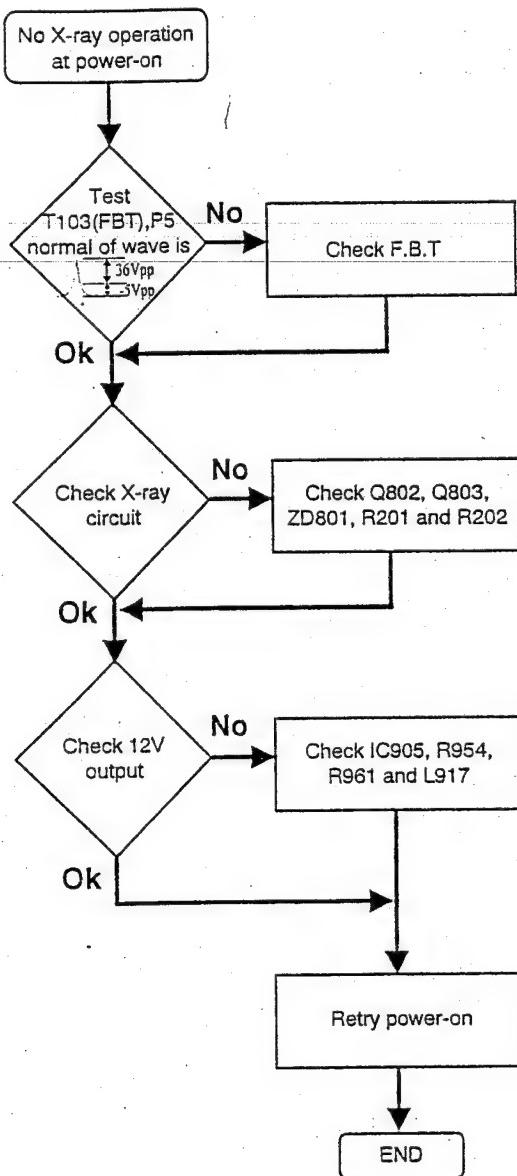
# **Troubleshooting**

5.1.	No Display at Power-on .....	5-1
5.2.	No X-ray Operation .....	5-2
5.3.	No Video Operation .....	5-3
5.4.	Poor Vertical Linearity .....	5-4
5.5.	Poor Horizontal Linearity .....	5-5
5.6.	Poor Uniformity .....	5-6
5.7.	Tilted Display Area .....	5-7
5.8.	Misconvergence .....	5-8
5.9.	Poor Regulation .....	5-9
5.10.	Poor Focus .....	5-10
5.11.	Poor Geometry Distortion .....	5-11

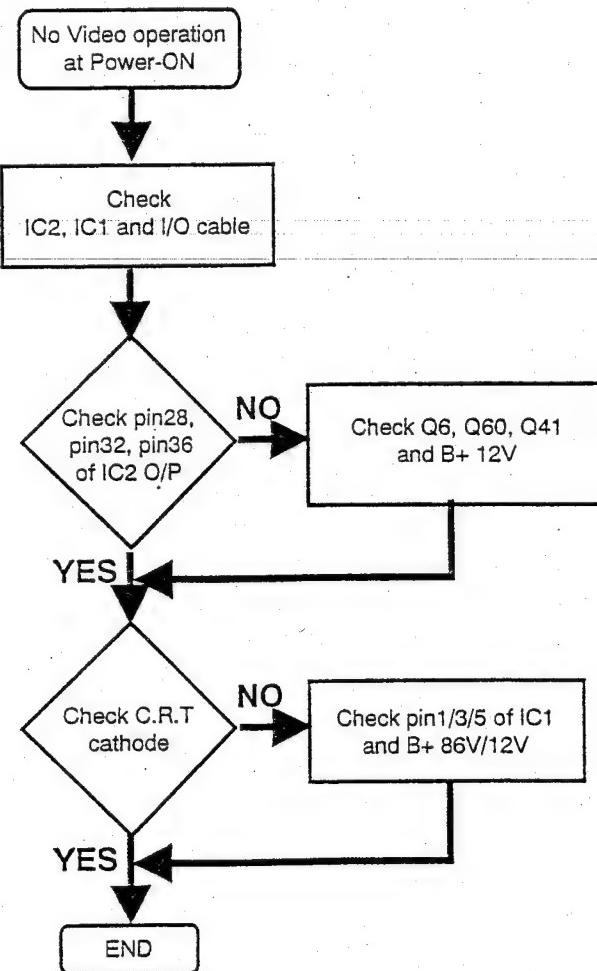
## 5.1. No Display at Power-on



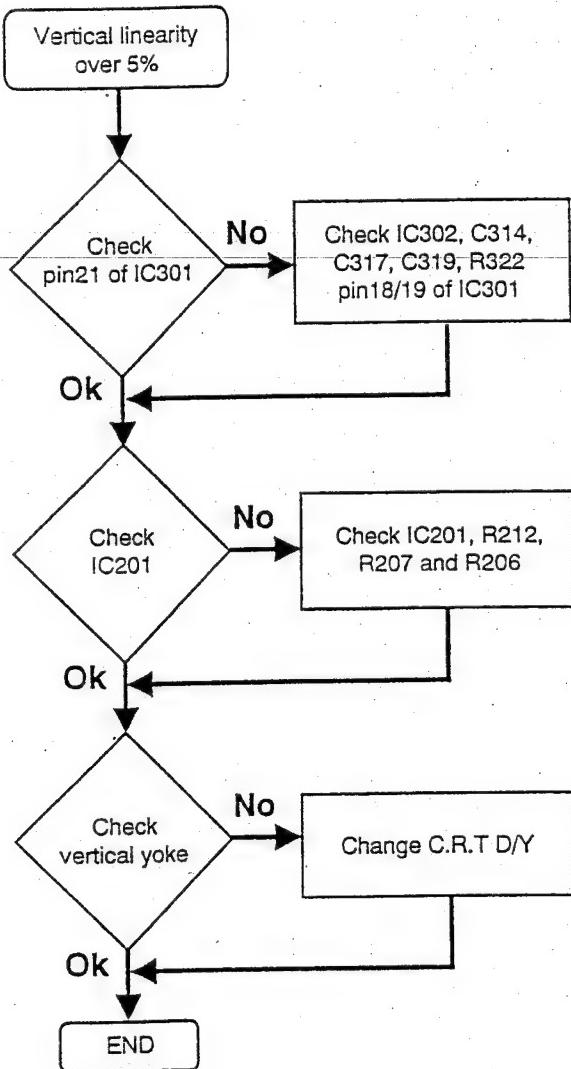
## 5.2. No X-ray Operation



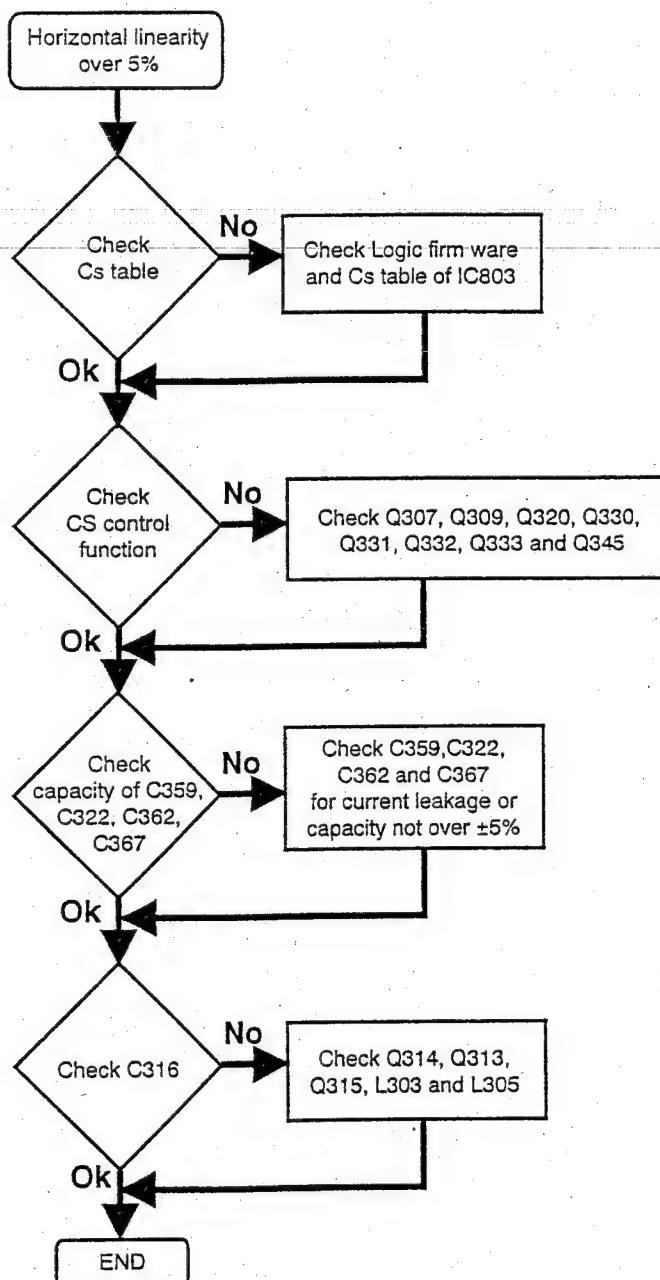
### 5.3. No Video Operation



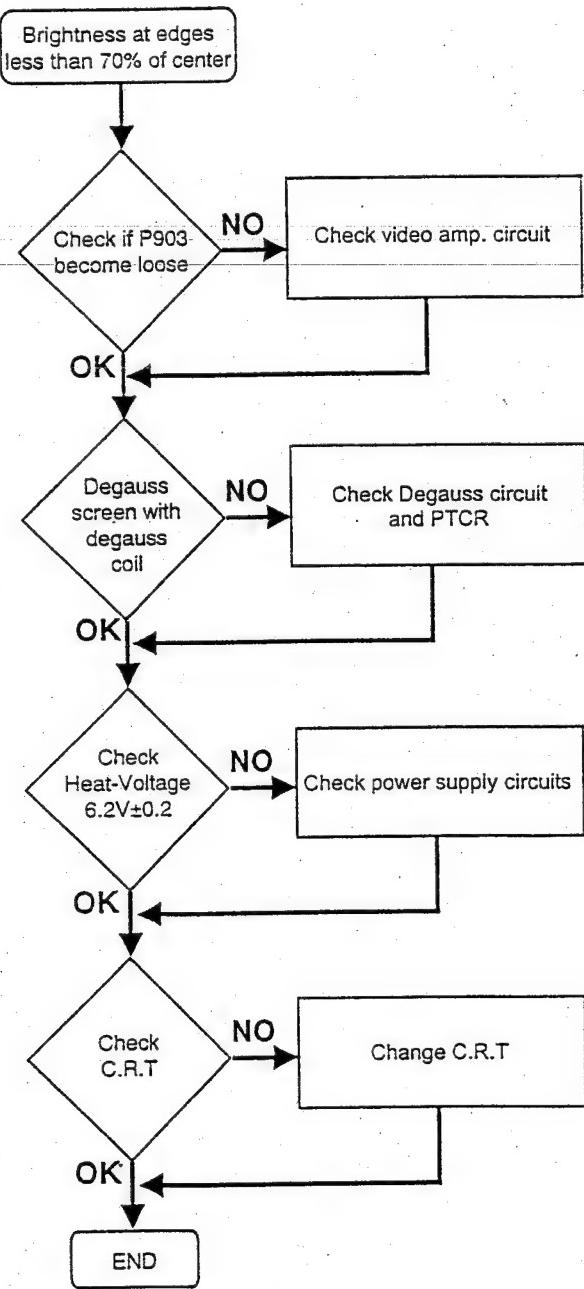
## 5.4. Poor Vertical Linearity



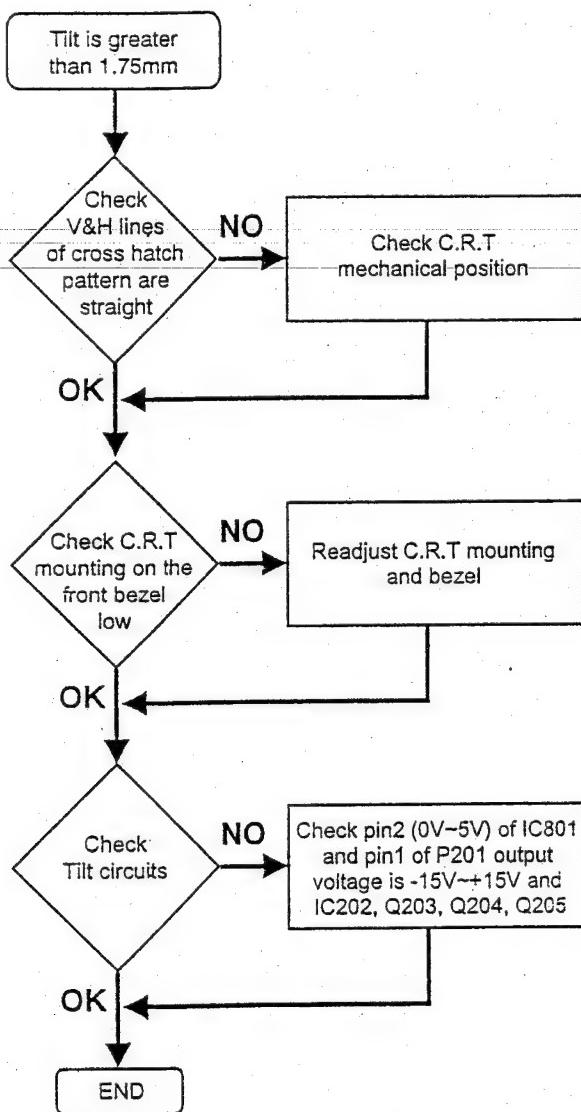
## 5.5. Poor Horizontal Linearity



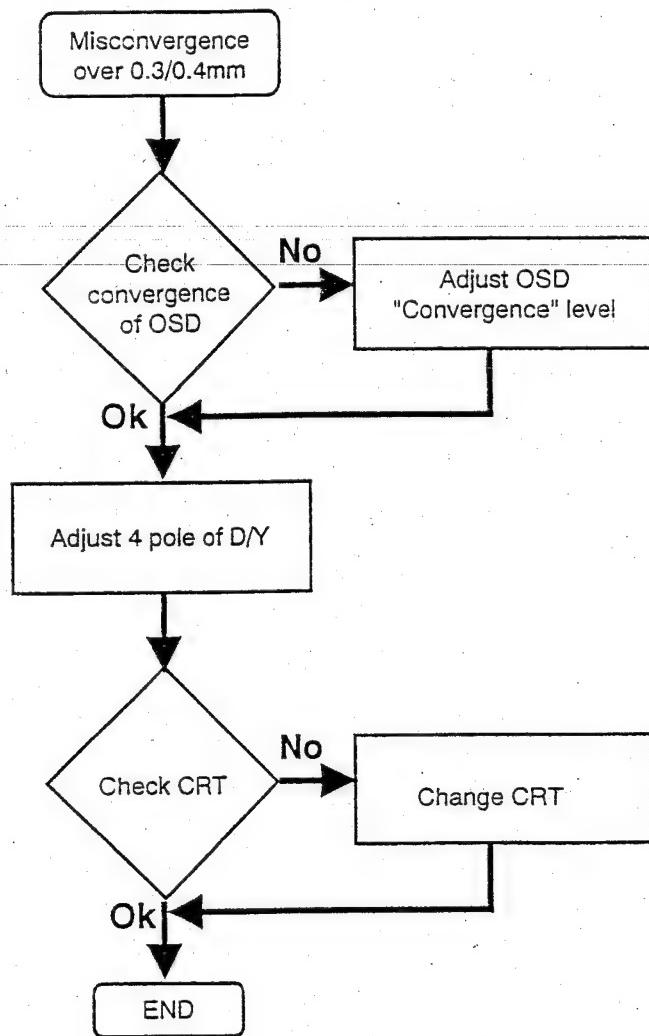
## 5.6. Poor Uniformity



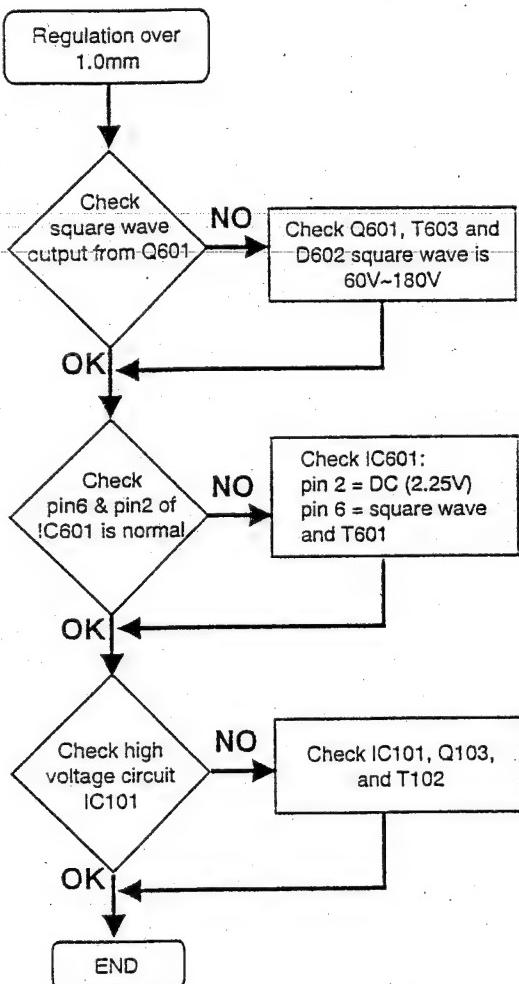
## 5.7. Tilted Display Area



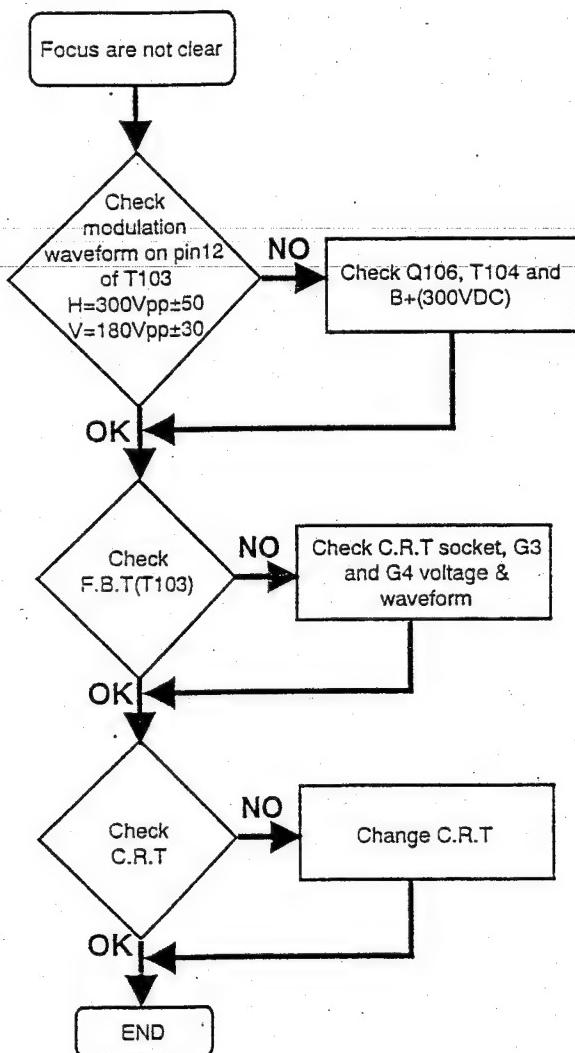
## 5.8. Misconvergence



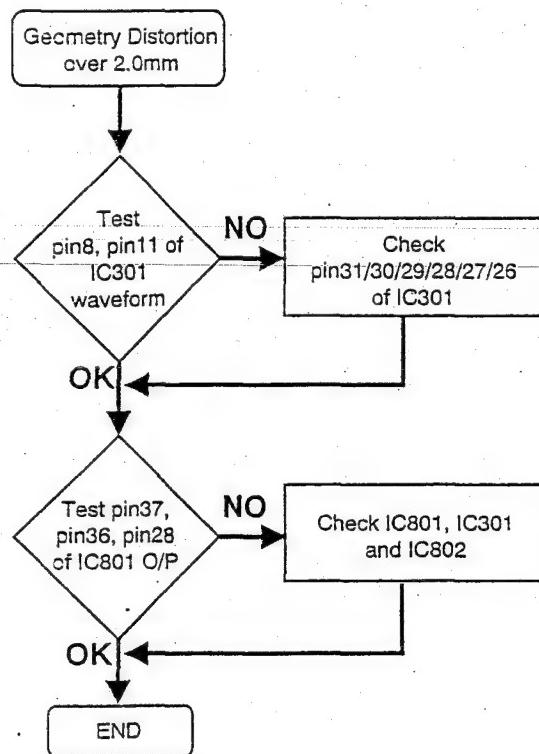
## 5.9. Poor Regulation



### 5.10. Poor Focus



## 5.11. Poor Geometry Distortion



# **Section 7.**

# **Schematic Diagrams**

- 
- |      |   |     |
|------|---|-----|
| 7.1. | Neck Circuit Diagram .....                | 7-1 |
| 7.2. | S/P/S and Deflection Circuit Diagram..... | 7-1 |

## **7.1. Neck Circuit Diagram**

Please refer to the attached circuit diagram.

## **7.2. S/P/S and Deflection Circuit Diagram**

Please refer to the attached circuit diagram.

## **Section 8.**

# **Mechanical Parts**

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8.1.	Key to Exploded View .....	8-1
8.2.	Exploded View. ....	8-2

## 8.1. Key to Exploded View

REF	PART NO	DESCRIPTION
1	1RA70K2H22	POWER KNOB
2	2011192H22	POWER SPRING
3	9010099A10	SPONGE 60X60X30
4	4410202010	POWER SWITCH KDC-A04-10(B)-A2G FOR SW901
5	8418113025	SCREW BIND(+) TAPPING M3X25 ZI FOR BTM & BEZEL X2,PW SW & BEZEL X2
6	1RAK0K9H24	PIANO KEY
7	VO9A240344-V1	CONTROL PCB ASSY
8	1R010K9H24	BEZEL
9	7010036519	CRT M46QCE261X112 SAMSUNG CRT
10	8513145025	SCREW W/LOCK WSR HEXAGON(+) /HD FOR BEZEL & CRT X4
11	1023094330	SPACERS RING
12	C001139A83	CRT BRAID WIRE ASS'Y
13	7020199A22	DEGAUSSING COIL
14	8127113006	SCREW PAN(+)VHD CAP TAPPING M3X6 FOR HOLDER(R)(L) & U-BKT X2,DY WIRE SHIELD & U-BKT
14	8127113006	SCREW PAN(+)VHD CAP TAPPING M3X6 FOR U-BKT & MAIN PCB X7
15	2004199H10	HOLDER (L) FOR BEZEL & U-BKT
16	8418114012	SCREW B/HD M4X12 TAPPING "P" FOR HOLDER (R) & BEZEL X2,HOLDER (L) & BEZEL X2.
17	2003199H10	HOLDER (R) FOR BEZEL & U-BKT
18	VO9A240144-V1	MAIN PCB (USB PW SAVING 3W) PA
19	VU9A640244-V1	NECK PCB ASSY
20	2002097A10	NECK SHIELD (B)
21	8418113008	SCREW B/HD M3X8 TAPPING "P" NECK SHIELD (F)(B) X4,IC1 H/S & NECK SHIELD (F) X2
22	1R020K9H24	BUCKET
23	8037114016	SCREW BIND(+) M4X16 HI-LOW FOR BEZEL & BOTTOM X2
23	8418114016	SCREW BIND(+) TRI "P" M4X16 FOR RETAINER & BASE X2
24	8026113012	SCREW B/HD M3X12 TAPPING "B" FOR BTM & U-BKT ASS'Y X4
25	1R030K9H10	BOTTOM
26	1AI00C9H10	RETAINER
27	8059114045	SCREW BIND(+) B-2 M4X45 TAPPIN FOR BEZEL & BUCKET
28	9021097M10	FOOT
29	1R050K9H10	BASE
30	3011100030	NUT ISO HEX M3 Z1NC FOR AC SOCKET
31	2001499H10	U BRACKET
32	9004099A64	DECOP PLATE (I/O CABLE)
33	2017094030	GROUND CLAMP FOR I/O CABLE & U-BKT
34	8121114008	SCREW CAP BID(+) M4X8 TAPPING FOR I/O CABLE CLIP
35	C7107A6110	I/O CABLE ASSY 1.8M W/BTU CON
36	7067F20122	LINE FILTER IX-0342 P FOR P901
37	8504113012	SCREW BIND(+) M3X12 MACH W/DIS FOR LINE FILTER
38	2001197A10	NECK SHIELD (F)

### Other parts list

REF	PART NO	DESCRIPTION
	1414002H22	LENS
	1R340K9H24	POWER SW CAP

REF	PART NO	DESCRIPTION
	2010097H10	TOP FINGER FOR FBT COVER & CRT CABCN TOUCH
	2011097B80	DY WIPE SHIELD FOR SAMSUNG CRT-M46QCE261X112(TCO)
	36723YL005	CABLE CLIP YL-5 FOR DEGAUSSING COIL
	36740WC011	CABLE CLIP WC-11 TO FIXED DEGAUSSING COIL
	4410516330	TCC MYLAR W/CABCN FOR SAMSUNG CRT-M46QCE261X112(TCO)
	463310000N	AC POWER CORD WALL 6FT GRY UL FOR 9A24
	4639H2500N	AC POWER CORD 1850MM VDE BLK FOR 9A25
	463110000N	AC POWER CORD PC VDE GRY 6FT FOR 9A2D/F
	5290005000	TUBE-SHRINK ID=5c FOR SW901
	5541025095	CABLE TIE 2.5X90
	5541025095	CABLE TIE 2.5X90 FIXED SW WIRE BESIDE U-BKT X1,I/O CABLE WIRE BESID
	5541025095	CABLE TIE 2.5X90 FOR FIXED CONTROL PCB WIRE ON MAIN PCB
	5541025160	CABLE TIE-BINDING 2.5X160 ARRANGE I/O CABLE BESIDE HOLDER
	555019S001	CLOTH FILM TAPE #19mm FOR TOP FINGER
	8059145012	SCREW BIND(+) M5X12 TAPPING B-FOR CABLE CLIP YL-5 & BEZEL X2
	8127113006	SCREW PAN(+)VHD CAP TAPPING M3X6 FOR FINGER & FBT COVER FIX
	9001099A24	CARTON
	9002097G18	LCGO
	9012A99A24	MANUAL
	9013099H24	REGISTRATION CARD
	9013299A82	CD-ROM
	C4595G1112	GND WIRE ASS'Y FOR REAR PANEL TO VIDEO SHIELD
	C488031218	CCNN. 3P & WIRE ASS'Y 400mm FCR P902

## 8.2. Exploded View

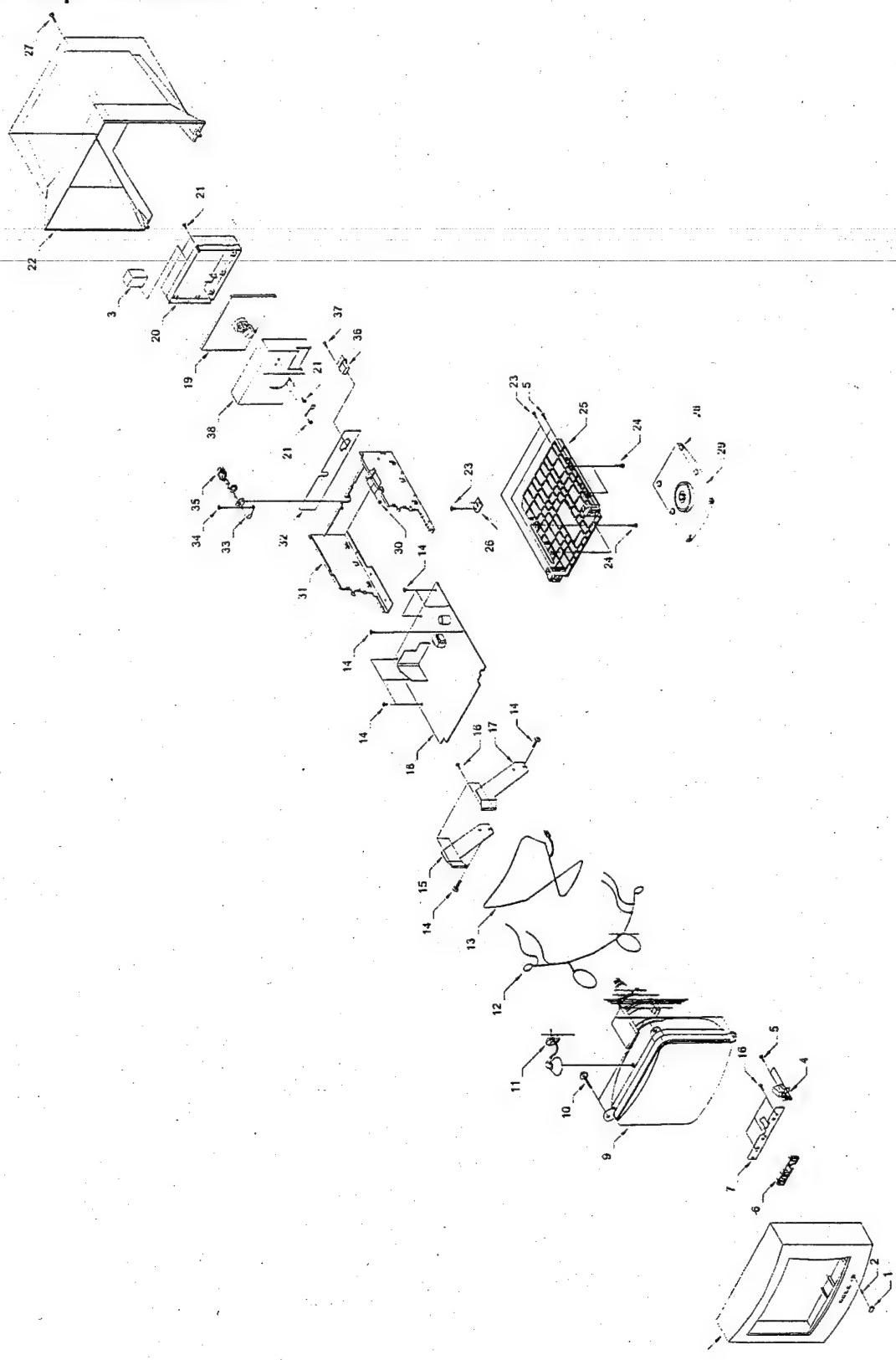


Figure 8-1 Exploded View

**Notes**

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## **Section 9.**

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# **PCB Component List**

9.1.	Explanation of Parts Listing.....	9-1
9.2.	Main Board .....	9-1
9.3.	Neck Board .....	9-8
9.4.	Control Board .....	9-11

## 9.1. Explanation of Parts Listing

This section contains a complete listing of the components used on the printed circuit boards contained in the system. For a listing of the mechanical parts, please refer to Section 8., Mechanical Parts.

The list of parts in this section is separated by PCB, and the order of the listing is based on the location reference (REF.) printed on the circuit board and shown in the schematics. Components without a reference location are listed at the beginning of each table in order of the part number, and the location reference of the part with which they are connected is given in the description.

*For example:*

2003097301	HEAT SINK FOR Q1
------------	------------------

shows Part No. 2003097301, which is connected or related to the components with a location reference of Q1.

Shaded items indicate components that are critical for safety or are of proprietary design and must be replaced with parts of the exact same specification or ordered directly from the manufacturer.

*For example:*

Q1	4101515070	TRS MOSFET 2SK1507 TO-220
----	------------	---------------------------

Indicates that the TRS. MOSFET, Part No. 4101515070 located at reference Q1, should only be replaced with the exact same part ordered from the manufacturer.

## 9.2. Main Board

REF.	PART NO.	DESCRIPTION
	VO9A240144	MAIN PCB (USB PW SAVING 3W) PA-V1
	1003090000	NYLON BUSHING FOR Q103,601 (IRF740,IRF840,STP10NA40)
	2000000011	CLIP WIRE FOR FBT COVER
	2000000011	CLIP WIRE FOR IC201
	2001397A20	FBT COVER
	2002199A80	HEAT SINK (L) FOR Q902
	2003199A10	HEAT SINK FOR IC902
	2003199A10	HEAT SINK FOR Q307
	2003199A10	HEAT SINK FOR Q313
	2003199A10	HEAT SINK FOR Q314
	2003199A10	HEAT SINK FOR Q333
	2003199A10	HEAT SINK FOR Q345
	2004097P10	HEAT SINK FOR IC201
	2004099A10	HEAT SINK FOR FBT COVER
	2004099A80	HEAT SINK FOR Q902
	2004197H10	HEAT SINK FOR FBT COVER
	2007095Y11	HEAT SINK (F1) FOR IC905
	2007095Y11	HEAT SINK (F1) FOR Q308
	2007095Y11	HEAT SINK (F1) FOR Q315
	2007095Y11	HEAT SINK (F1) FOR Q334
	2007891030	HEAT SINK FOR BD901
	2008383080	HEAT SINK
	2018095Y11	METAL HOLDER FOR D915,916
	2018095Y11	METAL HOLDER FOR D925,926
	3011100030	NUT ISO HEX M3 Z1NC FOR IC902

REF.	PART NO.	DESCRIPTION
	3011100030	NUT ISO HEX M3 Z1NC FOR Q307
	3011100030	NUT ISO HEX M3 Z1NC FOR Q333
	3011400026	NUT M2.6 ZMC FOR Q313
	3011400026	NUT M2.6 ZMC FOR Q314
	3011400026	NUT M2.6 ZMC FOR Q345
	3340101525	BEAD PIN 1.5e L=25 FOR R3A0 X2, R320 X2,R340 X2,R396 X2,R902 X2
	3340101525	BEAD PIN 1.5e L=25 FOR R907
	3340236016	BEAD PIN 16.5X2.36mm FOR R901 X2
	3340303400	TERMINAL TAB T=0.3mm FOR FBT COVER & PCB
	367232A007	WIRE LOCK FOR FIXED FBT WIRE
	36823TA103	WIRE CLIPPER TA10-35 FOR FBT COVER
	4141128754	P.C.B. MAIN
	41A9A8X026	FIRMWARE REV:X026
	4490500200	CCNN. 5P 2.0mm B5B-PH-K FOR P803
	4692300001	CLIP-FUSE 5MM FOR F901-X2
	5290010000	TUBE-SHRINK ID=10e FOR C340
	5290016000	TUBE-SHRINK ID=16e FOR L303
	5290026000	TUBE SHRINK ID=26e 40mm FOR C316
	5318202114	WIRE UL1015 #18 BLK 200-TERM 1 FOR F-F
	5324100900	WIRE UL1007 #24 BLK 30-K-K FOR G-G'
	5324110800	WIRE UL1007 #24 BRN 70-K-K FOR E-R622
	5324114000	WIRE 1007 #24 BRN 400-K-K FOR C-C'
	5520100004	INSULATOR SI-RUBBER TO-220 (W/ FOR C103,601 (IRF740,IRF840, STP1CNA40)
	5520100005	INSULATOR SI-RUBBER TO-3P FOR Q3C3
	5541025095	CABLE TIE 2.5X90 FOR FIXED FBT CORE X2,ARRANGE P301/P805 WIRE X1.
	555019S001	CLOTH FILM TAPE #19mm FOR FBT COVER
	555019S001	CLOTH FILM TAPE #19mm FOR HOLDER
	555019S001	CLOTH FILM TAPE #19mm FOR HOLDER
	5560080001	CORE-FE (S-26X13.5X28) FOR G2 & FCCUS WIRE
	5560080003	CORE-FE 2643665802 FOR G2 & FCCUS WIRE
	8026113008	SCREW B/HD M3X8 TAPPING "B" FOR CLIP WIRE
	8026113008	SCREW B/HD M3X8 TAPPING "B" FOR FBT COVER & PCB ASSY
	8026113008	SCREW B/HD M3X8 TAPPING "B" FOR HEAT SINK & FBT COVER X5, CLIP WIRE X1
	8026113010	SCREW BIND(+) TAPPING M3X10 TR FOR C902
	8026153008	SCREW B/HD M3X8 TAPPING "B" FOR C902 & MAIN PCB
	8113142606	SCREW PAN(+)/HD CAP MACH M2.6X6 FOR C313
	8113142606	SCREW PAN(+)/HD CAP MACH M2.6X6 FOR C314
	8113142606	SCREW PAN(+)/HD CAP MACH M2.6X6 FOR C345
	8127113006	SCREW PAN(+)/HD CAP TAPPING M3X6 FOR FIXED FBT COVER GND WIRE
	8418113010	SCREW BIND(+) TAPPING M3X10 Z1 FOR FBT & PCB ASS'Y
	8504113006	SCREW BIND(+) M3X6 MACH W/DISK FOR Q315
	8504113006	SCREW BIND(+) M3X6 MACH W/DISK FOR Q334

**PCB Component List**

REF.	PART NO.	DESCRIPTION
	8504113008	SCREW BIND(+) M3X8 MACH W/DISK FOR BD901
	8504113008	SCREW BIND(+) M3X8 MACH W/DISK FOR IC902
	8504113008	SCREW BIND(+) M3X8 MACH W/DISK FOR IC905
	8504113008	SCREW BIND(+) M3X8 MACH W/DISK FOR Q307
	8504113008	SCREW BIND(+) M3X8 MACH W/DISK FOR Q308
	8504113008	SCREW BIND(+) M3X8 MACH W/DISK FOR Q333
	8504113010	SCREW BIND(+) M3X10 MACH W/DIS FOR D110.304,Q103.105,342,601
	8504113010	SCREW BIND(+) M3X10 MACH W/DIS FOR Q902
	8504113012	SCREW BIND(+) M3X12 MACH W/DIS FOR IC201
	8504113012	SCREW BIND(+) M3X12 MACH W/DIS FOR Q303
	9006099A10	LABEL GROUND MARK FOR U-BKT
	9011294230	LABEL 28KV
	C001111073	GND WIRE ASSY 70mm FROM NECK SHIELD (F) TO YOKE
	C4597A4500	GND WIRE ASSY 210mm FOR FBT COVER TO NECK SHIELD
	C488111023	CONN. 11P X2 & WIRE W/CORE ASS FOR P301 & P805 TO P2,3
BD901W	4130400081	DIODE BRIDGE 4A/800V/GBU-4K
C101	5156339T50	CAP-EC6 3.3UFM 50V -RT-
C102	5092103615	CAP-PP .01UFJ 100V P:10mm -SF-
C103	5156339T50	CAP-EC6 3.3UFM 50V -RT-
C104	5074104101	CAP-MEF 0.1UFK 100V P:10MM -SF
C105	5074224101	CAP-MEF 0.22UFK 100V P:10MM -S
C106	5116102111	CAP-MC 0.001UFK 100V -RT-
C107	5156101T25	CAP-EC6 100UFM 25V -RT-
C108	5156101T25	CAP-EC6 100UFM 25V -RT-
C109	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C110	5156479T50	CAP-EC6 4.7UFM 50V -RT-
C112	5113474111	CAP-MC 0.47UFK 100V -SF-
C113	5128101152	CAP-C CSL 100PFK 50V -RT-
C114	5192152573	CAP-MPP 1500PFJ 1.6KV P:15mm
C115	5190334583	CAP-MPP 0.33UFJ 250V -SF-
C116	5156220S09	CAP-EC6 22UFM 350V -SF-
C132	5156229T50	CAP-EC6 2.2UFM 50V -RT-
C135	5116273111	CAP-MC 0.027UFK 100V -RT-
C140	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C141	5156479S03	CAP-EC6 4.7UFM 250V -SF-
C143	5116103111	CAP-MC 0.01UFK 100V -RT-
C144	5156100T16	CAP-EC6 10UFM 16V -RT-
C150	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C155	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C201	5156470S01	CAP-EC6 47UFM 100V -SF-
C202	5116103111	CAP-MC 0.01UFK 100V -RT-
C203	5156221T25	CAP-EC6 220UFM 25V -RT-
C205	5101221152	CAP-CCB 220PFK 50V -RT-
C206	5101221152	CAP-CCB 220PFK 50V -RT-
C208	5074104102	CAP-MEF 0.1UFK 250V P:10MM -SF
C209	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C210	5113224150	CAP-MC 0.22UFK 50V -SF-
C212	5156100T50	CAP-EC6 10UFM 50V -RT-
C213	5156100T50	CAP-EC6 10UFM 50V -RT-
C215	5156100T01	CAP-EC6 10UFM 100V -RT-
C301	5134104452	CAP-SCF 0.1UFZ 50V -RT-

REF.	PART NO.	DESCRIPTION
C303	5128101152	CAP-C CSL 100PFK 50V -RT-
C304	515X331S25	CAP-ECX 330UFM 25V -SF-
C305	5156221T25	CAP-EC6 220UFM 25V -RT-
C306	5116104111	CAP-MC 0.1UFK 100V -RT-
C307	5156471225	CAP-EC6 470UFM 25V -B-
C308	5156229T50	CAP-EC6 2.2UFM 50V -RT-
C309	5128101152	CAP-C CSL 100PFK 50V -RT-
C310	5128101152	CAP-C CSL 100PFK 50V -RT-
C311	5075102505	CAP-MEF 1000PFJ 50V CF
C312	5116433111	CAP-MC 0.043UFK 100V
C313	5116433111	CAP-MC 0.043UFK 100V
C314	5116102111	CAP-MC 0.001UFK 100V -RT-
C316	5196432593	CAP-PHV 4300PFJ 1800VH P:22.5
C317	5074224163	CAP-MEF 0.22UFK 63V -SF-
C319	5074104163	CAP-MEF 0.1UFK 63V -SF-
C320	5116392111	CAP-MC 0.0039UFK 100V -RT-
C321	5074224102	CAP-MEF 0.22UFK 250V P:15MM -S
C322	5198224583	CAP-PMS 0.22UFJ 250V -SF-
C323	5074104163	CAP-MEF 0.1UFK 63V -SF-
C324	515X331S25	CAP-ECX 330UFM 25V -SF-
C325	5156101T25	CAP-EC6 100UFM 25V -RT-
C326	7140104214	CAP-XTR 0.1UFM 100V -RT-
C327	5116103111	CAP-MC 0.01UFK 100V -RT-
C329	5116103111	CAP-MC 0.01UFK 100V -RT-
C330	5116222511	CAP-MC 0.0022UFJ 100V
C331	5116103550	CAP-MC 0.01UFJ 50V -RT-
C335	5156100T16	CAP-EC6 10UFM 16V -RT-
C340	51041034C3	CAP-CCF 0.01UFZ 2KV P:10MM -SF
C342	5101103133	CAP-CCB 0.01UFK 1KV P:10mm -SF
C344	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C346	5116472550	CAP-MC 0.0047UFJ 50V -RT-
C347	5156229T50	CAP-EC6 2.2UFM 50V -RT-
C351	5406100000	JUMP WIRE 0.6¢
C352	5406100000	JUMP WIRE 0.6¢
C359	5198564583	CAP-PMS 0.56UFJ 250V P:22.5MM
C362	5198104583	CAP-PMS 0.1UFJ 250V P:15mm -SF
C364	510H681132	CAP-CCH 680PFK 1KV -RT-
C367	5198684583	CAP-PMS 0.68UFJ 250V P:22.5MM
C370	5116104111	CAP-MC 0.1UFK 100V -RT-
C371	5116104111	CAP-MC 0.1UFK 100V -RT-
C372	5116104111	CAP-MC 0.1UFK 100V -RT-
C373	5116104111	CAP-MC 0.1UFK 100V -RT-
C380	510H222133	CAP-CCR 2200PFK 1KV P:7.5mm
C381	510H221193	CAP-CCR 220PFK 3KV P:7.5mm -SF
C383	5121109742	CAP-CCCH 1PFC 500V
C389	5156470T25	CAP-EC6 47UFM 25V -RT-
C390	5199204543	#CAP-PMV 0.2UFJ 400V P:15MM -S
C391	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C392	5156101T25	CAP-EC6 100UFM 25V -RT-
C601	515X101S03	CAP-ECX 100UFM 250V -SF-
C602	5101221143	CAP-CCB 220PFK 500V -SF-
C604	5128101152	CAP-C CSL 100PFK 50V -RT-
C605	5116222511	CAP-MC 0.0022UFJ 100V
C606	5101471152	CAP-CCB 470PFK 50V -RT-
C607	5156100T50	CAP-EC6 10UFM 50V -RT-
C608	5116152150	CAP-MC 0.0015UFK 50V -RT-
C609	5116333111	CAP-MC 0.033UFK 100V -RT-
C610	5156100T16	CAP-EC6 10UFM 16V -RT-
C612	5116104111	CAP-MC 0.1UFK 100V -RT-
C613	5134104452	CAP-SCF 0.1UFZ 50V -RT-

## G790-2 Service Manual

REF.	PART NO.	DESCRIPTION
C614	5116103550	CAP-MC 0.01UFJ 50V -RT-
C615	5156470T25	CAP-EC6 47UFM 25V -RT-
C801	5156229T50	CAP-EC6 2.2UFM 50V -RT-
C802	5156229T50	CAP-EC6 2.2UFM 50V -RT-
C803	5156229T50	CAP-EC6 2.2UFM 50V -RT-
C804	5156229T50	CAP-EC6 2.2UFM 50V -RT-
C805	5156229T50	CAP-EC6 2.2UFM 50V -RT-
C806	5156229T50	CAP-EC6 2.2UFM 50V -RT-
C807	5156100T50	CAP-EC6 10UFM 50V -RT-
C808	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C809	5156101T16	CAP-EC6 100UFM 16V -RT-
C810	5156100T50	CAP-EC6 10UFM 50V -RT-
C811	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C812	5128101152	CAP-CCSL 100PFK 50V -RT-
C813	5128101152	CAP-CCSL 100PFK 50V -RT-
C814	5156100T50	CAP-EC6 10UFM 50V -RT-
C815	5121470552	CAP-CCCH 47PFJ 50V -RT-
C816	5121470552	CAP-CCCH 47PFJ 50V -RT-
C817	5101221152	CAP-CCB 220PFK 50V -RT-
C818	5101221152	CAP-CCB 220PFK 50V -RT-
C820	7142104254	CAP-Z5U 0.1UFM 50V -RT-
C821	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C822	5156229T50	CAP-EC6 2.2UFM 50V -RT-
C823	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C824	5121470552	CAP-CCCH 47PFJ 50V -RT-
C841	7142104254	CAP-Z5U 0.1UFM 50V -RT-
C901	5061472440	CAP-CCS 4700PFM 400V -SF-
C902	5067224425	CAP-MPR 0.22UFM 250V -SF-
C903	5061471340	CAP-CCS 4700PFK 400V -SF-
C904	5061471340	CAP-CCS 4700PFK 400V -SF-
C905	5063222425	CAP-CCS 2200PFM AC250V P:10mm
C907	515P331S04	CAP-ECP 330UFM 400V -SF-
C908	5074104104	CAP-MEF 0.1UFK 400V P:15MM -SF
C909	510H6811C3	CAP-CCR 680PFK 2KV P:7.5mm -SF
C910	5156470T50	CAP-EC6 47UFM 50V -RT-
C911	515X220S07	CAP-ECX 22UFM 200V -SF-
C912	5074472505	CAP-MEF 0.0047UFJ 50V -SF-
C913	5128331552	CAP-CCSL 330PFJ 50V -RT-
C914	5101102152	CAP-CCB 1000PFK 50V -RT-
C915	5156109T50	CAP-EC6 1UFM 50V -RT-
C916	5061472440	CAP-CCS 4700PFM 400V -SF-
C917	5156470T16	CAP-EC6 47UFM 16V -RT-
C918	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C919	5075224163	CAP-MEF 0.22UFK 63V CF
C920	5128331552	CAP-CCSL 330PFJ 50V -RT-
C921	5074104101	CAP-MEF 0.1UFK 100V P:10MM -SF
C922	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C923	5156471S25	CAP-EC6 470UFM 25V -SF-
C925	5156221S02	CAP-EC6 220UFM 160V -SF-
C926	5156221S07	CAP-EC6 220UFM 200V -SF-
C928	5153102S25	CAP-EC3 1000UFM 25V 10X20 -SF-
C930	5156101T16	CAP-EC6 100UFM 16V -RT-
C931	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C932	5067224425	CAP-MPR 0.22UFM 250V -SF-
C933	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C934	5156470T50	CAP-EC6 47UFM 50V -RT-
C935	5156101T16	CAP-EC6 100UFM 16V -RT-
C936	5101332152	CAP-CCB 3300PFK 50V -RT-
C937	5156101T16	CAP-EC6 100UFM 16V -RT-
C938	5074474105	CAP-MEF 0.47UFK 50V -SF-

REF.	PART NO.	DESCRIPTION
C939	5101102132	CAP-CCB 1000PFK 1KV -RT-
C940	5128331552	CAP-CCSL 330PFJ 50V -RT-
C942	5101102132	CAP-CCB 1000PFK 1KV -RT-
C944	5121820552	CAP-CCCH 82PFJ 50V -RT-
C945	510H102132	CAP-CCR 1000PFK 1KV P:5mm -RT-
C948	5156331S25	CAP-EC6 330UFM 25V -SF-
C950	5156471S16	CAP-EC6 470UFM 16V -SF-
C951	5075104163	CAP-MEF 0.1UFK 63V CF
C955	515X471S16	CAP-ECX 470UFM 16V -SF-
C956	5075224163	CAP-MEF 0.22UFK 63V CF
C960	5156221T25	CAP-EC6 220UFM 25V -RT-
D101	4120141480	DIODE IN4148 (S) -AT-
D102	4120141480	DIODE IN4148 (S) -AT-
D105	4120141480	DIODE IN4148 (S) -AT-
D107	4120141480	DIODE IN4148 (S) -AT-
D110	41305002E0	DIODE EFP-G2ES TO-220AB 1500V
D111	413020426C	DIODE 2.3A/600V BYM26C -AT
D112	4130104004	DIODE UF4004 400V/1A -AT
D113	413020426C	DIODE 2.3A/600V BYM26C -AT
D114	4130010212	DIODE RGP02112E 1200V/0.5A -AT
D125	4120141480	DIODE IN4148 (S) -AT
D130	4130100107	DIODE RGP10U-5390 1A 600V -AT
D140	4120141480	DIODE IN4148 (S) -AT
D141	4130100107	DIODE RGP10U-5390 1A 600V -AT
D142	4120141480	DIODE IN4148 (S) -AT
D202	4130101003	DIODE SR1003 1A/200V -AT
D204	4120141480	DIODE IN4148 (S) -AT
D205	4120141480	DIODE IN4148 (S) -AT
D301	4120104001	DIODE IN4001 -AT
D303	41301721Q6	DIODE 21DQ06 1.7A/60V -AT
D304	4130010200	DIODE EFP-G2ES TO-220E
D305	4130100218	DIODE RGP02118E 5300V -AT
D308	413010110G	DIODE EGP10G-PKG23 400V/1A -AT
D309	4130104004	DIODE UF4004 400V/1A -AT
D310	4130100218	DIODE RGP02118E 5300V -AT
D311	4130101060	DIODE ER106 DO-41 1A/600V
D317	4130100107	DIODE RGP10U-5390 1A 600V -AT
D323	4120141480	DIODE IN4148 (S) -AT
D324	4120141480	DIODE IN4148 (S) -AT
D325	4120141480	DIODE IN4148 (S) -AT
D326	4130100218	DIODE RGP02118E 5300V -AT
D327	4130100218	DIODE RGP02118E 5300V -AT
D340	4130100218	DIODE RGP02118E 5300V -AT
D344	4130100218	DIODE RGP02118E 5300V -AT
D601	4120141480	DIODE IN4148 (S) -AT
D602	41303031F4	DIODE 3A/400V/35NS/31DF4 -AT
D603	4120141480	DIODE IN4148 (S) -AT
D604	4120141480	DIODE IN4148 (S) -AT
D605	4120141480	DIODE IN4148 (S) -AT
D804	4120141480	DIODE IN4148 (S) -AT
D805	4120141480	DIODE IN4148 (S) -AT
D810	4120141480	DIODE IN4148 (S) -AT
D901	4130101060	DIODE ER106 DO-41 1A/600V
D902	4130101060	DIODE ER106 DO-41 1A/600V
D903	4130101060	DIODE ER106 DO-41 1A/600V
D904	413010110G	DIODE 11DQ06 -AT
D905	413010426D	DIODE TA800V BYV26D
D906	4130101060	DIODE ER106 DO-41 1A/600V
D907	4130101060	DIODE ER106 DO-41 1A/600V
D908	413010426E	DIODE BAV26E 1A/1000V SOD-57

REF	PART NO.	DESCRIPTION
D909	4120141480	DIODE 1N4148 (S1)-AT
D910	4120141480	DIODE 1N4148 (S1)-AT
D911	4120141480	DIODE 1N4148 (S1)-AT
D912	4120141480	DIODE 1N4148 (S1)-AT
D913	4120141480	DIODE 1N4148 (S1)-AT
D914	4120141480	DIODE 1N4148 (S1)-AT
D915	41303031F4	DIODE 3A/400V 35NS 31DF4-AT
D916	41303031F4	DIODE 3A/400V 35NS 31DF4-AT
D918	41303031F2	DIODE 3A/200V 31DF2
D919	4130304311	DIODE 31DF1-AT
D921	4120140401	DIODE 1N4001-AT
D922	4120141480	DIODE 1N4148 (S1)-AT
D924	4120140403	DIODE 1N4003-AT
D925	41303031F6	DIODE 31DF6
D926	41303031F6	DIODE 31DF6
D928	4120140401	DIODE 1N4001-AT
D930	41301011S3	DIODE 1EQS03 TA30V
D932	4120141480	DIODE 1N4148 (S1)-AT
D937	4120141480	DIODE 1N4148 (S1)-AT
D938	41301011S3	DIODE 1EQS03 TA30V
D960	4130101102	DIODE 11DP2-AT
F901	5268400052	FUSE 4A/250VAC
FB101	4322209046	FERRITE BEAD 2UH -AT-
FB102	4322209046	FERRITE BEAD 2UH -AT-
FB301	4322309005	FERRITE BEAD 3uH
FB601	4322209046	FERRITE BEAD 2UH -AT-
FB602	4322209046	FERRITE BEAD 2UH -AT-
FB603	4322209046	FERRITE BEAD 2UH -AT-
FB901	4322209046	FERRITE BEAD 2UH -AT-
FB902	4322209046	FERRITE BEAD 2UH -AT-
FB903	4322209046	FERRITE BEAD 2UH -AT-
FB904	4322309005	FERRITE BEAD 3uH
FB905	4322309006	FERRITE BEAD 3uH -AT-
FB906	4322309006	FERRITE BEAD 3uH -AT-
IC101	41597500B0	IC KA7500B 16PIN
IC201	4159486600	IC TDA4866 9PIN SIL9P
IC202	4159358000	IC LLM358N 8PIN
IC301	4159485600	IC TDA4856
IC320	4159358000	IC LLM358N 8PIN
IC601	4159384300	IC UC3843A 8PIN
IC801	4159727503	IC ST72751N9BT/IC Y MASK X026
IC802	415924L160	IC 24LC16BP 8PIN DIP
IC803	4159740200	IC SN74HC102AN 14PIN
IC804	4159242100	IC 24LC218PIN
IC806	4159519510	IC M5195BSI
IC901	4159384200	IC UC3842A 8PIN
IC902	4159780501	IC 7805 REGULATOR 1.25V
IC903	415943100A	IC LLM431ACE REGULATOR IC-92-R
IC904	415943100A	IC CTL431 REGULATOR IC-92-RT
IC905	4159317001	IC LLM317PW/MOUNTING KIT TO-220
J102	5406100000	JUMP WIRE 0.6¢
J103	5406100000	JUMP WIRE 0.6¢
J104	5406100000	JUMP WIRE 0.6¢
J105	5406100000	JUMP WIRE 0.6¢
J106	5406100000	JUMP WIRE 0.6¢
J107	5406100000	JUMP WIRE 0.6¢
J110	5406100000	JUMP WIRE 0.6¢
J111	5406100000	JUMP WIRE 0.6¢
J113	5406100000	JUMP WIRE 0.6¢
J114	5406100000	JUMP WIRE 0.6¢

REF	PART NO.	DESCRIPTION
J116	5406100000	JUMP WIRE 0.6¢
J118	5406100000	JUMP WIRE 0.6¢
J119	5406100000	JUMP WIRE 0.6¢
J120	5406100000	JUMP WIRE 0.6¢
J121	5406100000	JUMP WIRE 0.6¢
J123	5406100000	JUMP WIRE 0.6¢
J124	5406100000	JUMP WIRE 0.6¢
J126	5406100000	JUMP WIRE 0.6¢
J200	5406100000	JUMP WIRE 0.6¢
J201	5406100000	JUMP WIRE 0.6¢
J202	5406100000	JUMP WIRE 0.6¢
J203	5406100000	JUMP WIRE 0.6¢
J204	5406100000	JUMP WIRE 0.6¢
J205	5406100000	JUMP WIRE 0.6¢
J206	5406100000	JUMP WIRE 0.6¢
J207	5406100000	JUMP WIRE 0.6¢
J208	5406100000	JUMP WIRE 0.6¢
J209	5406100000	JUMP WIRE 0.6¢
J210	5406100000	JUMP WIRE 0.6¢
J211	5406100000	JUMP WIRE 0.6¢
J212	5406100000	JUMP WIRE 0.6¢
J213	5406100000	JUMP WIRE 0.6¢
J214	5406100000	JUMP WIRE 0.6¢
J215	5406100000	JUMP WIRE 0.6¢
J216	5406100000	JUMP WIRE 0.6¢
J217	5406100000	JUMP WIRE 0.6¢
J218	5406100000	JUMP WIRE 0.6¢
J219	5406100000	JUMP WIRE 0.6¢
J220	5406100000	JUMP WIRE 0.6¢
J221	5406100000	JUMP WIRE 0.6¢
J222	5406100000	JUMP WIRE 0.6¢
J223	5406100000	JUMP WIRE 0.6¢
J224	5406100000	JUMP WIRE 0.6¢
J225	5406100000	JUMP WIRE 0.6¢
J226	5406100000	JUMP WIRE 0.6¢
J227	5406100000	JUMP WIRE 0.6¢
J228	5406100000	JUMP WIRE 0.6¢
J229	5406100000	JUMP WIRE 0.6¢
J230	5406100000	JUMP WIRE 0.6¢
J232	5406100000	JUMP WIRE 0.6¢
J233	5406100000	JUMP WIRE 0.6¢
J234	5406100000	JUMP WIRE 0.6¢
J235	5406100000	JUMP WIRE 0.6¢
J236	5406100000	JUMP WIRE 0.6¢
J238	5406100000	JUMP WIRE 0.6¢
J239	5406100000	JUMP WIRE 0.6¢
J240	5406100000	JUMP WIRE 0.6¢
J241	5406100000	JUMP WIRE 0.6¢
J242	5406100000	JUMP WIRE 0.6¢
J243	5406100000	JUMP WIRE 0.6¢
J244	5406100000	JUMP WIRE 0.6¢
J245	5406100000	JUMP WIRE 0.6¢
J246	5406100000	JUMP WIRE 0.6¢
J247	5406100000	JUMP WIRE 0.6¢
J248	5406100000	JUMP WIRE 0.6¢
J249	5406100000	JUMP WIRE 0.6¢
J250	5406100000	JUMP WIRE 0.6¢
J251	5406100000	JUMP WIRE 0.6¢
J252	5406100000	JUMP WIRE 0.6¢
J253	5406100000	JUMP WIRE 0.6¢

## G790-2 Service Manual

REF.	PART NO.	DESCRIPTION
J254	5406100000	JUMP WIRE 0.6c
J255	5406100000	JUMP WIRE 0.6c
J256	5406100000	JUMP WIRE 0.6c
J257	5406100000	JUMP WIRE 0.6c
J258	5406100000	JUMP WIRE 0.6c
J259	5406100000	JUMP WIRE 0.6c
J260	5406100000	JUMP WIRE 0.6c
J261	5406100000	JUMP WIRE 0.6c
J262	5406100000	JUMP WIRE 0.6c
J263	5406100000	JUMP WIRE 0.6c
J264	5406100000	JUMP WIRE 0.6c
J265	5406100000	JUMP WIRE 0.6c
J266	5406100000	JUMP WIRE 0.6c
J268	5406100000	JUMP WIRE 0.6c
J269	5406100000	JUMP WIRE 0.6c
J270	5406100000	JUMP WIRE 0.6c
J272	5406100000	JUMP WIRE 0.6c
J273	5406100000	JUMP WIRE 0.6c
J274	5406100000	JUMP WIRE 0.6c
J275	5406100000	JUMP WIRE 0.6c
J276	5406100000	JUMP WIRE 0.6c
J277	5406100000	JUMP WIRE 0.6c
J278	5406100000	JUMP WIRE 0.6c
J279	5406100000	JUMP WIRE 0.6c
J280	5406100000	JUMP WIRE 0.6c
J281	5406100000	JUMP WIRE 0.6c
J282	5406100000	JUMP WIRE 0.6c
J283	5406100000	JUMP WIRE 0.6c
J284	5406100000	JUMP WIRE 0.6c
J285	5406100000	JUMP WIRE 0.6c
J286	5406100000	JUMP WIRE 0.6c
J287	5406100000	JUMP WIRE 0.6c
J288	5406100000	JUMP WIRE 0.6c
J289	5406100000	JUMP WIRE 0.6c
J290	5406100000	JUMP WIRE 0.6c
J291	5406100000	JUMP WIRE 0.6c
J292	5406100000	JUMP WIRE 0.6c
J293	5406100000	JUMP WIRE 0.6c
J294	5406100000	JUMP WIRE 0.6c
J295	5406100000	JUMP WIRE 0.6c
J296	5406100000	JUMP WIRE 0.6c
J297	5406100000	JUMP WIRE 0.6c
J298	5406100000	JUMP WIRE 0.6c
J299	5406100000	JUMP WIRE 0.6c
J300	4322209046	FERRITE BEAD 2UH -AT-
J301	5406100000	JUMP WIRE 0.6c
J303	5406100000	JUMP WIRE 0.6c
J304	5406100000	JUMP WIRE 0.6c
J305	5406100000	JUMP WIRE 0.6c
J306	5406100000	JUMP WIRE 0.6c
J307	5406100000	JUMP WIRE 0.6c
J308	5406100000	JUMP WIRE 0.6c
J310	5406100000	JUMP WIRE 0.6c
J311	5406100000	JUMP WIRE 0.6c
J312	5406100000	JUMP WIRE 0.6c
J313	5406100000	JUMP WIRE 0.6c
J314	5406100000	JUMP WIRE 0.6c
J315	5406100000	JUMP WIRE 0.6c
J316	5406100000	JUMP WIRE 0.6c
J317	5406100000	JUMP WIRE 0.6c

REF.	PART NO.	DESCRIPTION
J318	5406100000	JUMP WIRE 0.6c
J319	5406100000	JUMP WIRE 0.6c
J320	5406100000	JUMP WIRE 0.6c
J321	5406100000	JUMP WIRE 0.6c
J322	5406100000	JUMP WIRE 0.6c
J323	5406100000	JUMP WIRE 0.6c
J324	5406100000	JUMP WIRE 0.6c
J325	5406100000	JUMP WIRE 0.6c
J326	5406100000	JUMP WIRE 0.6c
J327	5406100000	JUMP WIRE 0.6c
J328	5406100000	JUMP WIRE 0.6c
J329	5406100000	JUMP WIRE 0.6c
J330	5406100000	JUMP WIRE 0.6c
J331	5406100000	JUMP WIRE 0.6c
J332	5406100000	JUMP WIRE 0.6c
J333	4321151006	COIL PEAKING 150UH -AT-
J336	5406100000	JUMP WIRE 0.6c
J337	5406100000	JUMP WIRE 0.6c
J338	5406100000	JUMP WIRE 0.6c
J340	5406100000	JUMP WIRE 0.6c
J341	5406100000	JUMP WIRE 0.6c
J343	5406100000	JUMP WIRE 0.6c
L101	4321399006	COIL PEAKING 3.9UH -AT-
L103	4321151006	COIL PEAKING 150UH -AT-
L301	5406100000	JUMP WIRE 0.6c
L302	5406100000	JUMP WIRE 0.6c
L303	4323809503	COIL CHOKE 8mH
L305	708S207A20	COIL LINEARITY
L306	4323809503	COIL CHOKE 8mH
L310	4322309006	FERRITE BEAD 3UH -AT-
L601	4321151006	COIL PEAKING 150UH -AT-
L901	4321330006	COIL PEAKING 33UH -AT-
L911	5406100000	JUMP WIRE 0.6c
L913	5406100000	JUMP WIRE 0.6c
L914	5406100000	JUMP WIRE 0.6c
L915	4323500103	COIL CHOKE 50uH
L917	5406100000	JUMP WIRE 0.6c
P201	4490300140	CONN. 3P 2.5mm B-EA-A WAFER
P302	4490400207	CCNN. 4P WAFER ROUND PIN
P806	4491080000	CONN. 10P WAFER
P901	7067F20122	LINE FILTER IX-0342-P
P903	4490200207	CONN. 2P WAFER ROUND PIN 10MM
P905	4490300190	CONN. 3.96 3P W/O PIN 2 -SF-
PH901	4159435002	POTO COUPLER X'STER 4N35 W=10
PH902	4159072100	POTO COUPLER 4P TLP721F (GR)
PH903	4159072100	POTO COUPLER 4P TLP721F (GR)
PTCR	7021174230	PTCR 14R
Q101	411022120X	TRS2SC2T20Y TO-92M RT
Q102	4110009660	TRS2SA9661TPE6 TO-92M RT
Q103	4101531150	TRS1MOSEET2SK3115 TO-220 60
Q104	4101531090	TRS1MOSEET2SK3109 TO-220AB
Q105	4100252970	TRS2SC5297 TO-3P
Q106	4116610010	TRS1RN1001 TO-3P
Q110	4110007330	TRS2SA733 TO-92M RT
Q113	4110007330	TRS2SA733 TO-92M RT
Q140	4116612030	TRS1RN1203 TO-3P
Q141	4112409200	TRS1KSP92 TO-92
Q142	4110007330	TRS2SA733 TO-92M RT
Q201	411030657C	TRS2SD667C TO-92M RT
Q202	411030667C	TRS2SD667C TO-92M RT

**PCB Component List**

REF	PART NO.	DESCRIPTION
Q203	411010647A	TRS-2SB647A(C)-RT
Q204	411030667C	TRS-2SD667C TO-92M-RT
Q206	4116612030	TRS-RN1203-RT
Q302	4101531090	TRS-MOSFET-2SK3109-TO-220AB
Q303	4100255730	TRS-2SC5573
Q307	4105906400	TRS-IRF640-TO-220
Q308	410031264A	TRS-2SD1264A
Q309	4116612030	TRS-RN1203-RT
Q313	410010649A	TRS-2SB649A(C)-TO-126
Q314	4100226880	TRS-2SC2688-TO-126
Q315	410030669A	TRS-2SD669AWC-TO-126
Q320	4116612030	TRS-RN1203-RT
Q330	41035012K0	TRS-FS12KM-5.12A/250V-TO-220
Q331	4116612030	TRS-RN1203-RT
Q332	4116612030	TRS-RN1203-RT
Q333	4105906400	TRS-IRF640-TO-220
Q334	4105906400	TRS-IRF640-TO-220
Q340	411020945P	TRS-2SC945P-TO-92-RT
Q341	4100246320	TRS-2SC4632LS-TO-220
Q342	4100246320	TRS-2SC4632LS-TO-220
Q345	4100227520	TRS-2SC2752-K-TO-126
Q346	411020945P	TRS-2SC945P-TO-92-RT
Q370	411020945P	TRS-2SC945P-TO-92-RT
Q371	4110009660	TRS-2SA966-TPE6-TO-92M-RT
Q601	4101531150	TRS-MOSFET-2SK3115-TO-220/60
Q602	4110007330	TRS-2SA733-TO-92M-RT
Q603	4111139040	TRS-2N3904-TO-92-RT
Q604	411020945P	TRS-2SC945P-TO-92-RT
Q605	4111139060	TRS-2N3906-TO-92-RT
Q606	4116612030	TRS-RN1203-RT
Q801	411020945P	TRS-2SC945P-TO-92-RT
Q802	411022655Y	TRS-2SC2655-Y-TO-92M-RT
Q803	4110009660	TRS-2SA966-TPE6-TO-92M-RT
Q902	41035010K0	TRS-FS10KM-12-TO-220
Q903	4114501006	TRS-MCR100-6-TO-92-RT
Q904	4110105610	TRS-2SB561-TO-92-RT
Q905	4116612030	TRS-RN1203-RT
Q907	4116610010	TRS-RN1001-RT
Q908	4100502230	TRS-LOP223Y-TO-220
Q909	4116612030	TRS-RN1203-RT
Q910	4116610010	TRS-RN1001-RT
Q911	411022120Y	TRS-2SC2120Y-TO-92-RT
Q915	411020945P	TRS-2SC945P-TO-92-RT
R101	4050533255	RES-CF 1/4W J 3.3K -AT- SMALL
R102	4050568255	RES-CF 1/4W J 6.8K SMALL -AT-
R103	4257041403	RES-PR MF 1/4W F 140K SMALL -A
R104	4050551255	RES-CF 1/4W J 5.1K -AT- SMALL
R105	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R106	4050551255	RES-CF 1/4W J 5.1K -AT- SMALL
R107	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R108	4050533255	RES-CF 1/4W J 3.3K -AT- SMALL
R109	4050510455	RES-CF 1/4W J 100K -AT- SMALL
R110	4050524055	RES-CF 1/4W J 24R SMALL -AT-
R111	4050502055	RES-CF 1/4W J 2K -AT- SMALL
R112	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R114	4050547255	RES-CF 1/4W J 4.7K -AT- SMALL
R115	41172012053	RES-MOF-2W-J12R-SF
R116	4171033953	RES-MOF 1W J 3.3R -SF-
R117	4050147055	RES-CF 1/2W J 47R -AT- SMALL
R119	4050547455	RES-CF 1/4W J 470K SMALL -AT-

REF	PART NO.	DESCRIPTION
R138	4050515255	RES-CF 1/4W J 1.5K SMALL -AT-
R139	4050512455	RES-CF 1/4W J 120K -AT- SMALL
R140	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R142	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R143	4257041273	RES-PR MF 1/4W F 127K SMALL -A
R145	4050510555	RES-CF 1/4W J 1M -AT- SMALL
R146	4171047256	RES-MOF 1W J 4.7K -AT-
R147	4171024956	RES-MOF 1W J 2.4R -AT-
R148	4050568255	RES-CF 1/4W J 6.8K SMALL -AT-
R149	4050518355	RES-CF 1/4W J 18K SMALL -AT-
R150	4050511355	RES-CF 1/4W J 11K SMALL -AT-
R151	4050133155	RES-CF 1/2W J 330R -AT- SMALL
R152	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R153	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R154	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R201	4257041652	RES-PR MF 1/4W F 16.5K SMALL -
R202	4257048062	RES-PR MF 1/4W F 80.6K SMALL -
R203	4050147255	RES-CF 1/2W J 4.7K SMALL -AT-
R204	4171012953	RES-MOF 1W J 1.2R -SF-AT
R206	4257041001	RES-PR MF 1/4W F 1K AT SMALL
R207	4257041001	RES-PR MF 1/4W F 1K AT SMALL
R208	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R209	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R210	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R212	4257042741	RES-PR MF 1/4W F 2.74K SMALL -
R213	4050510055	RES-CF 1/4W J 10R -AT- SMALL
R215	4050547355	RES-CF 1/4W J 47K -AT- SMALL
R216	4050582255	RES-CF 1/4W J 8.2K -AT- SMALL
R218	4050522355	RES-CF 1/4W J 22K SMALL -AT-
R220	4050522255	RES-CF 1/4W J 2.2K -AT- SMALL
R221	4050527255	RES-CF 1/4W J 2.7K -AT- SMALL
R223	4050151955	RES-CF 1/2W J 5.1R SMALL -AT-
R224	4050536355	RES-CF 1/4W J 36K -AT- SMALL
R226	4050575355	RES-CF 1/4W J 75K SMALL -AT-
R228	4050522955	RES-CF 1/4W J 2.2R SMALL -AT-
R229	4050522955	RES-CF 1/4W J 2.2R SMALL -AT-
R230	4050147255	RES-CF 1/2W J 4.7K SMALL -AT-
R231	4171036156	RES-MOF 1W J 360R -AT-
R232	41720279533	RES-MOF 2W J 2.7R -SF-AT
R238	4050518255	RES-CF 1/4W J 1.8K -AT- SMALL
R301	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R302	4257048451	RES-PR MF 1/4W F 8.45K SMALL -
R303	4257041002	RES-PR MF 1/4W F 10K AT SMALL
R304	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R305	4050547155	RES-CF 1/4W J 470R SMALL -AT-
R306	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R312	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R313	4050518355	RES-CF 1/4W J 18K SMALL -AT-
R314	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R315	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R316	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R317	4171082053	RES-MOF 1W J 82R -SF-
R318	41773470533	RES-MOF 3W J 347R -SF-AT
R319	5406100000	JUMP WIRE 0.6c
R320	41720139553	RES-MOF 2W J 139R L=89MM
R321	5406100000	JUMP WIRE 0.6c
R322	4050522355	RES-CF 1/4W J 22K SMALL -AT-
R323	4050515255	RES-CF 1/4W J 1.5K SMALL -AT-
R324	4257047320	RES-PR MF 1/4W F 732R SMALL -A
R325	4257042871	RES-PR MF 1/4W F 2.87K SMALL -

## G790-2 Service Manual

REF.	PART NO.	DESCRIPTION
R329	4257042373	RES-PR MF 1/4W F 237K SMALL -A
R330	5406100000	JUMP WIRE 0.6c
R332	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R333	4172010053	RES-MOF 2W J 10R -SF-
R334	4172075853	RES-MOF 2W J 0.75R -SF-
R335	4050547255	RES-CF 1/4W J 4.7K -AT- SMALL
R336	4171010456	RES-MOF 1W J 100K -AT-
R337	4050539355	RES-CF 1/4W J 39K SMALL -AT-
R338	4050543355	RES-CF 1/4W J 43K SMALL -AT-
R340	4172010455	RES-MOF 2W J 100K L=83mm
R342	4050527355	RES-CF 1/4W J 27K -AT- SMALL
R343	4257043740	RES-PR MF 1/4W F 374R AT SMALL
R345	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R346	4050522255	RES-CF 1/4W J 2.2K -AT- SMALL
R347	4050530255	RES-CF 1/4W J 3K -AT- SMALL
R348	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R349	4050551455	RES-CF 1/4W J 510K SMALL -AT-
R350	4050551455	RES-CF 1/4W J 510K SMALL -AT-
R351	4171010253	RES-MOF 1W J 1K -SF-
R352	4050527255	RES-CF 1/4W J 2.7K -AT- SMALL
R353	4257041242	RES-PR MF 1/4W F 12.4K AT SMAL
R354	4050147455	RES-CF 1/2W J 470K -AT- SMALL
R355	4050147455	RES-CF 1/2W J 470K -AT- SMALL
R358	4172082053	RES-MOF 2W J 82R -SF-
R359	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R360	4177315053	RES-MOF 3W J 15R -SMALL -SF-
R361	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R362	5406100000	JUMP WIRE 0.6c
R367	4257041002	RES-PR MF 1/4W F 10K AT SMALL
R369	4257041002	RES-PR MF 1/4W F 10K AT SMALL
R370	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R371	4050547155	RES-CF 1/4W J 470R SMALL -AT-
R372	4050547155	RES-CF 1/4W J 470R SMALL -AT-
R380	4050522255	RES-CF 1/4W J 2.2K -AT- SMALL
R382	4050110455	RES-CF 1/2W J 100K SMALL -AT-
R383	4050110455	RES-CF 1/2W J 100K SMALL -AT-
R384	4050522255	RES-CF 1/4W J 2.2K -AT- SMALL
R385	4050110455	RES-CF 1/2W J 100K SMALL -AT-
R386	4050522255	RES-CF 1/4W J 2.2K -AT- SMALL
R388	4050110455	RES-CF 1/2W J 100K SMALL -AT-
R389	4257046981	RES-PR MF 1/4W F 6.98K AT SMAL
R395	4050133155	RES-CF 1/2W J 330R -AT- SMALL
R396	4177347355	RES-MOF 3W J 47K SMALL -IB-
R397	4177347353	RES-MOF 3W J 47K SMALL -SF-
R398	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R3A0	4172013953	RES-MOF 2W J 13R L=83MM
R3A2	4171012056	RES-MOF 1W J 12R -AT-
R3A3	5406100000	JUMP WIRE 0.6c
R3A5	4050582355	RES-CF 1/4W J 82K -AT- SMALL
R3A6	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R601	4050510055	RES-CF 1/4W J 10R -AT- SMALL
R602	4050515255	RES-CF 1/4W J 1.5K SMALL -AT-
R603	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R604	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R605	4050522255	RES-CF 1/4W J 2.2K -AT- SMALL
R606	4050539255	RES-CF 1/4W J 3.9K -AT- SMALL
R607	4050536355	RES-CF 1/4W J 36K -AT- SMALL
R608	4050551355	RES-CF 1/4W J 51K -AT- SMALL
R609	4257041742	RES-PR MF 1/4W F 17.4K AT SMAL
R610	4257041472	RES-PR MF 1/4W F 14.7K SMALL -

REF.	PART NO.	DESCRIPTION
R611	4050568255	RES-CF 1/4W J 6.8K SMALL -AT-
R612	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R613	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R614	4050547355	RES-CF 1/4W J 47K -AT- SMALL
R615	4050522255	RES-CF 1/4W J 2.2K -AT- SMALL
R616	4050182055	RES-CF 1/2W J 82R SMALL -AT-
R617	4050510055	RES-CF 1/4W J 10R -AT- SMALL
R618	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R619	4050168155	RES-CF 1/2W J 680R -AT- SMALL
R620	4050547155	RES-CF 1/4W J 470R SMALL -AT-
R621	4050551255	RES-CF 1/4W J 5.1K -AT- SMALL
R624	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R801	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R802	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R803	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R804	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R805	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R806	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R807	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R808	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R809	4050510455	RES-CF 1/4W J 100K -AT- SMALL
R810	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R811	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R812	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R813	4050547155	RES-CF 1/4W J 470R SMALL -AT-
R814	4257041002	RES-PR MF 1/4W F 10K AT SMAL
R815	4257045111	RES-PR MF 1/4W F 5.11K AT SMAL
R816	4257041001	RES-PR MF 1/4W F 1K AT SMALL
R817	4257041001	RES-PR MF 1/4W F 1K AT SMALL
R818	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R819	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R820	4050520255	RES-CF 1/4W J 2K -AT- SMALL
R821	4050547255	RES-CF 1/4W J 4.7K -AT- SMALL
R822	4050547255	RES-CF 1/4W J 4.7K -AT- SMALL
R823	4050522055	RES-CF 1/4W J 22R SMALL -AT-
R824	4050522055	RES-CF 1/4W J 22R SMALL -AT-
R825	4050522055	RES-CF 1/4W J 22R SMALL -AT-
R826	4050522055	RES-CF 1/4W J 22R SMALL -AT-
R827	4050510555	RES-CF 1/4W J 1M -AT- SMALL
R828	4050512255	RES-CF 1/4W J 1.2K -AT- SMALL
R831	4050547155	RES-CF 1/4W J 470R SMALL -AT-
R832	4050547155	RES-CF 1/4W J 470R SMALL -AT-
R833	4050547255	RES-CF 1/4W J 4.7K -AT- SMALL
R834	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R835	4050582255	RES-CF 1/4W J 8.2K -AT- SMALL
R836	5406100000	JUMP WIRE 0.6c
R837	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R838	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R839	4050522255	RES-CF 1/4W J 2.2K -AT- SMALL
R842	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R843	4050575155	RES-CF 1/4W J 750R SMALL -AT-
R844	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R847	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R848	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R849	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R850	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R852	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R853	4050522155	RES-CF 1/4W J 220R SMALL -AT-
R855	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R901	7108010038	TH-MER. 10R 8A SCK108

**PCB Component List**

REF	PART NO	DESCRIPTION
R902	4172033855	RES-MOF2WJ 0.33R
R905	4095010351	RES-WW5W J 10K-SQM-SF
R906	409502025H	RES-WW5W J 2K
R907	4172030355	RES-MOF2WJ 30K-IB
R909	4050527255	RES-CF 1/4W J 2.7K -AT- SMALL
R910	4050518055	RES-CF 1/4W J 18R -AT- SMALL
R911	4050539055	RES-CF 1/4W J 39R -AT- SMALL
R912	4257041002	RES-PR MF 1/4W F 10K AT SMALL
R914	4093033855	RES-WW3W J 0.33R SMALL NO IND
R915	4050524255	RES-CF 1/4W J 2.4K SMALL -AT-
R916	4050516255	RES-CF 1/4W J 1.6K -AT- SMALL
R918	4050516355	RES-CF 1/4W J 16K SMALL -AT-
R920	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R921	4050551255	RES-CF 1/4W J 5.1K -AT- SMALL
R922	4050551255	RES-CF 1/4W J 5.1K -AT- SMALL
R923	4050547055	RES-CF 1/4W J 47R -AT- SMALL
R924	4050575155	RES-CF 1/4W J 750R SMALL -AT-
R925	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R926	4050551255	RES-CF 1/4W J 5.1K -AT- SMALL
R927	4050515355	RES-CF 1/4W J 15K -AT- SMALL
R928	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R929	4050515355	RES-CF 1/4W J 15K -AT- SMALL
R930	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R931	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R932	4050522155	RES-CF 1/4W J 220R SMALL -AT-
R933	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R934	4050547155	RES-CF 1/4W J 470R SMALL -AT-
R935	4050536155	RES-CF 1/4W J 360R SMALL -AT-
R936	4050547155	RES-CF 1/4W J 470R SMALL -AT-
R937	4257048872	RES-PR MF 1/4W F 88.7K SMALL -
R939	4257042612	RES-PR MF 1/4W F 26.1K SMALL -
R940	4257043241	RES-PR MF 1/4W F 3.24K SMALL -
R941	4257046812	RES-PR MF 1/4W F 68.1K SMALL -
R942	4050551255	RES-CF 1/4W J 5.1K -AT- SMALL
R945	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R946	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R947	4050533155	RES-CF 1/4W J 330R SMALL -AT-
R948	4257043241	RES-PR MF 1/4W F 3.24K SMALL -
R949	4257043401	RES-PR MF 1/4W F 3.4K SMALL -A
R950	4172043953	RES-MOF2WJ 143R-SF
R951	4050575055	RES-CF 1/4W J 75R -AT- SMALL
R952	4050516155	RES-CF 1/4W J 160R SMALL -AT-
R953	4171051053	RES-MOF1W J 51R -SF-
R954	4257041101	RES-PR MF 1/4W F 1.1K SMALL -A
R955	5406100000	JUMP WIRE 0.6c
R956	4050182455	RES-CF 1/2W J 820K SMALL -AT-
R957	4050575455	RES-CF 1/4W J 750K SMALL -AT-
R958	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R960	4050551055	RES-CF 1/4W J 51R -AT- SMALL
R961	4257049091	RES-PR MF 1/4W F 9.09K SMALL -
R962	4171010156	RES-MOF1W J 100R -AT-
R964	4050575455	RES-CF 1/4W J 750K SMALL -AT-
R965	4050513055	RES-CF 1/4W J 13R SMALL -AT-
R966	4050568155	RES-CF 1/4W J 680R SMALL -AT-
R970	4172020958	RES-MOF2WJ 2R
R977	4050556555	RES-CF 1/4W J 5.6M SMALL -AT-
R978	4050530355	RES-CF 1/4W J 30K SMALL -AT-
R979	4050510355	RES-CF 1/4W J 10K -AT- SMALL
R980	4050510355	RES-CF 1/4W J 10K -AT- SMALL
RL901	4420412009	RELAY JW2aHN-DC12V

REF	PART NO	DESCRIPTION
RN801	4082073325	RES-NET 7P J 3.3K COMMON
RN802	4082104725	RES-NET 10P J 4.7K COMMON
RN804	4082071035	RES-NET 7P J 10K COMMON
SG301	5106122304	SPARK GAP 1.2KV AG-15 P:5.0MM
T101	7050257H10	DRIVER TRANSFORMER
T102	7050917110	O/P TRANSFORMER
T103	7050307420	F.B.T.
T301	7050209420	H-DRIVER TRANSFORMER
T601	7177H10000	TRANSDUCER CURRENT SENSOR
T602	7050959A00	H-TRANSFORMER (O/P)
T603	705025423L	DRIVER TRANSFORMER
T901	7067H10303	CHCKE COMMON MODE
T903	7050109A20	POWER TRANSFORMER EE42/20
T904	7050157A20	POWER TRANSFORMER EE19USB
VAR903	7112755950	VARISTOR 275V 2322-595-2716
VR101	5225110410	POT(CERMET) 0.3W 100K 6c LAY-D
VR102	5225120310	POT(CERMET) 0.3W 20K 6c LAY-DO
XT801	7152400010	CRYSTAL 24MHz AT-49 +/-30ppm
ZD140	4120510160	Z-D 1W 160V +/-5% DO-41 A-
ZD201	4120547570	Z-D 1N4757A DO-41 51V +/-5% 1W
ZD303	41420560160	DIODE ZENER P6KE-160CA
ZD304	41420560160	DIODE ZENER P6KE-160CA
ZD305	41420560160	DIODE ZENER P6KE-160CA
ZD306	41420560160	DIODE ZENER P6KE-160CA
ZD340	414205006C3	DIODE ZENER 62V/HZ6C 3-A
ZD601	41420500152	DIODE ZENER 14.5-15.1V-A
ZD602	414205006C1	DIODE ZENER 6.1V/HZ6C 1-A
ZD801	414205009C1	DIODE ZENER HZ9C 1-A
ZD804	414205051AU	DIODE ZENER MTZU5TA-A
ZD806	414205051AU	DIODE ZENER MTZU5TA-A
ZD807	414205051AU	DIODE ZENER MTZU5TA-A
ZD808	414205051AU	DIODE ZENER MTZU5TA-A
ZD811	414205051AU	DIODE ZENER MTZU5TA-A
ZD812	414205051AU	DIODE ZENER MTZU5TA-A
ZD901	41420500152	DIODE ZENER 14.5-15.1V-A
ZD902	41420500152	DIODE ZENER 14.5-15.1V-A
ZD903	41420502002	DIODE ZENER HZ2021/2W:20V-A
ZD905	41420561600	Z-DP6KE-160A5/160V+/-5% SW
ZD906	41420501802	DIODE ZENER HZ18-2V-A

### 9.3. Neck Board

REF	PART NO	DESCRIPTION
	VU9A640244	NECK PCB ASSY
	VU9A640244	NECK PCB ASSY
	2005095D10	HEAT SINK (C) FOR IC1
	3011100030	NUT ISO HEX M3 Z1NC FOR IC1
	4141134053	P.C.B. NECK
	555019S001	CLOTH FILM TAPE #19mm ON NECK PCB TRACE SIDE
	8026153008	SCREW B/HD M3X8 TAPPING "B" FOR H/S & NECK PCB ASS'Y X2
	8504113010	SCREW BIND(+) M3X10 MACH W/DIS FOR IC1
C1	5156100T50	CAP-EC6 10UFM 50V -RT-
C11	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C12	5121220552	CAP-CCCH 22PFJ 50V -RT-
C13	5162109T01	CAP-NP 1UFM 100V -RT-
C14	5134104452	CAP-SCF 0.1UFZ 50V -RT-

## G790-2 Service Manual

REF.	PART NO.	DESCRIPTION
C15	7140104214	CAP-X7R 0.1UFM 100V -RT-
C2	5155100T50	CAP-EC6 10UFM 50V -RT-
C21	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C22	5121220552	CAP-CCCH 22PFJ 50V -RT-
C23	5162109T01	CAP-NP 1UFM 100V -RT-
C24	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C25	7140104214	CAP-X7R 0.1UFM 100V -RT-
C3	5156100T50	CAP-EC6 10UFM 50V -RT-
C30	5156221T25	CAP-EC6 220UFM 25V -RT-
C31	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C32	5121220552	CAP-CCCH 22PFJ 50V -RT-
C33	5162109T01	CAP-NP 1UFM 100V -RT-
C34	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C35	7140104214	CAP-X7R 0.1UFM 100V -RT-
C4	510H1021C3	CAP-CCR 1000PFK 2KV P:7.5MM -S
C40	5121470552	CAP-CCCH 47PFJ 50V -RT-
C43	5121220552	CAP-CCCH 22PFJ 50V -RT-
C44	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C45	5121330552	CAP-CCCH 33PFJ 50V -RT-
C50	5101222152	CAP-CCB 2200PFK 50V -RT-
C55	5121470552	CAP-CCCH 47PFJ 50V -RT-
C6	5121101552	CAP-CCCH 100PFJ 50V -RT-
C7	5162479T50	CAP-NP 4.7UFM 50V RT 85C
C70	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C71	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C72	5156479T50	CAP-EC6 4.7UFM 50V -RT-
C73	5074223101	CAP-MEF 0.022UFK 100V -SF-
C74	5113224150	CAP-MC 0.22UFK 50V -SF-
C75	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C8	5156101T16	CAP-EC6 100UFM 16V -RT-
C80	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C81	5156101T16	CAP-EC6 100UFM 16V -RT-
C82	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C83	5156101T16	CAP-EC6 100UFM 16V -RT-
C84	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C85	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C86	5156101T16	CAP-EC6 100UFM 16V -RT-
C87	7140104214	CAP-X7R 0.1UFM 100V -RT-
C88	5156470S01	CAP-EC6 47UFM 100V -SF-
C89	7140104214	CAP-X7R 0.1UFM 100V -RT-
C8A	515X100T01	CAP-ECX 10UFM 100V -RT-
C8B	7140104214	CAP-X7R 0.1UFM 100V -RT-
C9	5156100T50	CAP-EC6 10UFM 50V -RT-
C90	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C91	5121470552	CAP-CCCH 47PFJ 50V -RT-
C92	5156470T50	CAP-EC6 47UFM 50V -RT-
C93	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C94	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C95	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C96	5104103463	CAP-CCF 0.01UFZ 1.5KV -SF-
C97	5156470T50	CAP-EC6 47UFM 50V -RT-
C98	5134104452	CAP-SCF 0.1UFZ 50V -RT-
C99	5134104452	CAP-SCF 0.1UFZ 50V -RT-
CRT1	457030423H	SOCKET CRT
D1	4120141480	DIODE IN4148 (SI) -AT-
D10	4120141480	DIODE IN4148 (SI) -AT-
D11	4120141480	DIODE IN4148 (SI) -AT-
D12	413258020U	DIODE BAV20 DO-35 -AT-
D13	413258020U	DIODE BAV20 DO-35 -AT-
D14	413258020U	DIODE BAV20 DO-35 -AT-

REF.	PART NO.	DESCRIPTION
D2	4120141480	DIODE IN4148 (SI) -AT-
D20	4120141480	DIODE IN4148 (SI) -AT-
D21	4120141480	DIODE IN4148 (SI) -AT-
D22	413258020U	DIODE BAV20 DO-35 -AT-
D23	413258020U	DIODE BAV20 DO-35 -AT-
D24	413258020U	DIODE BAV20 DO-35 -AT-
D3	4120141480	DIODE IN4148 (SI) -AT-
D30	4120141480	DIODE IN4148 (SI) -AT-
D31	4120141480	DIODE IN4148 (SI) -AT-
D32	413258020U	DIODE BAV20 DO-35 -AT-
D33	413258020U	DIODE BAV20 DO-35 -AT-
D34	413258020U	DIODE BAV20 DO-35 -AT-
D7	4120141480	DIODE IN4148 (SI) -AT-
D81	4120141480	DIODE IN4148 (SI) -AT-
D82	4120141480	DIODE IN4148 (SI) -AT-
D9	4130101060	DIODE ER106 DO-41-1A/600V
FB10	4322209005	FERRITE BEAD 2UH
FB11	4322209504	FERRITE BEAD 3uH
FB12	4322209005	FERRITE BEAD 2UH
FB13	4322209504	FERRITE BEAD 3uH
FB14	4322209005	FERRITE BEAD 2UH
FB15	4322209046	FERRITE BEAD 2UH -AT-
FB16	4322209005	FERRITE BEAD 2UH
FB17	4322209005	FERRITE BEAD 2UH
FB18	4322209005	FERRITE BEAD 2UH
FB19	4322209005	FERRITE BEAD 2UH
FB20	4322209005	FERRITE BEAD 2UH
FB21	4322209005	FERRITE BEAD 2UH
FB22	4322209005	FERRITE BEAD 2UH
FB30	4322209005	FERRITE BEAD 2UH
FB7	4322209046	FERRITE BEAD 2UH -AT-
FB70	4322209046	FERRITE BEAD 2UH -AT-
FB8	4322209046	FERRITE BEAD 2UH -AT-
FB9	4322209046	FERRITE BEAD 2UH -AT-
FB90	4322209046	FERRITE BEAD 2UH -AT-
FB92	4322209046	FERRITE BEAD 2UH -AT-
FB93	4322209046	FERRITE BEAD 2UH -AT-
FB94	4321101006	COIL PEAKING 100UH -AT-
FB95	4322209046	FERRITE BEAD 2UH -AT-
FT1	5406100000	JUMP WIRE 0.6c
FT2	5406100000	JUMP WIRE 0.6c
FT3	5406100000	JUMP WIRE 0.6c
IC1	4159240210	IC LM2402
IC2	4159274303	IC MC743SP3
IC3	4159141545	IC MC14154SP2 MASK1SC4524P2
IC5	4155074860	IC 74HC86N4PIN
J1	5406100000	JUMP WIRE 0.6c
J10	5406100000	JUMP WIRE 0.6c
J11	5406100000	JUMP WIRE 0.6c
J12	5406100000	JUMP WIRE 0.6c
J14	5406100000	JUMP WIRE 0.6c
J15	5406100000	JUMP WIRE 0.6c
J16	5406100000	JUMP WIRE 0.6c
J17	5406100000	JUMP WIRE 0.6c
J18	5406100000	JUMP WIRE 0.6c
J19	5406100000	JUMP WIRE 0.6c
J2	5406100000	JUMP WIRE 0.6c
J20	5406100000	JUMP WIRE 0.6c
J21	5406100000	JUMP WIRE 0.6c
J22	5406100000	JUMP WIRE 0.6c

**PCB Component List**

REF.	PART NO.	DESCRIPTION
J23	5406100000	JUMP WIRE 0.6c
J24	5406100000	JUMP WIRE 0.6c
J26	5406100000	JUMP WIRE 0.6c
J27	5406100000	JUMP WIRE 0.6c
J28	5406100000	JUMP WIRE 0.6c
J29	5406100000	JUMP WIRE 0.6c
J3	5406100000	JUMP WIRE 0.6c
J30	5406100000	JUMP WIRE 0.6c
J31	5406100000	JUMP WIRE 0.6c
J32	5406100000	JUMP WIRE 0.6c
J33	5406100000	JUMP WIRE 0.6c
J4	5406100000	JUMP WIRE 0.6c
J5	5406100000	JUMP WIRE 0.6c
J6	5406100000	JUMP WIRE 0.6c
J7	5406100000	JUMP WIRE 0.6c
J8	5406100000	JUMP WIRE 0.6c
J9	5406100000	JUMP WIRE 0.6c
L1	4321338006	COIL PEAKING 0.33UH -AT-
L2	4321338006	COIL PEAKING 0.33UH -AT-
L3	4321158006	COIL PEAKING 0.15UH -AT-
P1	4491200130	CONN. 12P B12B-XH-A
Q1	4113904220	TRS-BF422 TO-92
Q10	4113904230	TRS-BF423 TO-92 -RT
Q2	4113904220	TRS-BF422 TO-92
Q20	4113904230	TRS-BF423 TO-92 -RT
Q3	4113904220	TRS-BF422 TO-92
Q30	4113904230	TRS-BF423 TO-92 -RT
Q40	4111139040	TRS-2N3904 TO-92 -RT
Q41	4111139040	TRS-2N3904 TO-92 -RT
Q5	4116612030	TRS-RN1203 -RT
Q6	4111139040	TRS-2N3904 TO-92 -RT
Q60	4111139040	TRS-2N3904 TO-92 -RT
R1	4257047509	RES-PR MF 1/4W F 75R AT SMALL
R10	4050510055	RES-CF 1/4W J 10R -AT- SMALL
R12	4050547155	RES-CF 1/4W J 470R SMALL -AT-
R13	4050510055	RES-CF 1/4W J 10R -AT- SMALL
R15	4050520355	RES-CF 1/4W J 20K -AT- SMALL
R16	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R17	4050175055	RES-CF 1/2W J 75R SMALL -AT-
R18	4060247015	RES-CC 1/2W K 47R -AT-
R19	4050547355	RES-CF 1/4W J 47K -AT- SMALL
R1B	4050510455	RES-CF 1/4W J 100K -AT- SMALL
R1D	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R1E	4050547355	RES-CF 1/4W J 47K -AT- SMALL
R1F	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R1G	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R1H	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R2	4257047509	RES-PR MF 1/4W F 75R AT SMALL
R20	4050510055	RES-CF 1/4W J 10R -AT- SMALL
R22	4050547155	RES-CF 1/4W J 470R SMALL -AT-
R23	4050510055	RES-CF 1/4W J 10R -AT- SMALL
R25	4050520355	RES-CF 1/4W J 20K -AT- SMALL
R26	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R27	4050175055	RES-CF 1/2W J 75R SMALL -AT-
R28	4060247015	RES-CC 1/2W K 47R -AT-
R29	4050547355	RES-CF 1/4W J 47K -AT- SMALL
R2B	4050510455	RES-CF 1/4W J 100K -AT- SMALL
R2D	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R2E	4050547355	RES-CF 1/4W J 47K -AT- SMALL
R2F	4050510155	RES-CF 1/4W J 100R -AT- SMALL

REF.	PART NO.	DESCRIPTION
R2G	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R2H	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R3	4257047509	RES-PR MF 1/4W F 75R AT SMALL
R30	4050510055	RES-CF 1/4W J 10R -AT- SMALL
R32	4050547155	RES-CF 1/4W J 470R SMALL -AT-
R33	4050510055	RES-CF 1/4W J 10R -AT- SMALL
R35	4050520355	RES-CF 1/4W J 20K -AT- SMALL
R36	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R37	4050175055	RES-CF 1/2W J 75R SMALL -AT-
R38	4060247015	RES-CC 1/2W K 47R -AT-
R39	4050547355	RES-CF 1/4W J 47K -AT- SMALL
R38	4050510455	RES-CF 1/4W J 100K -AT- SMALL
R3D	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R3E	4050547355	RES-CF 1/4W J 47K -AT- SMALL
R3F	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R3G	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R3H	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R40	4050110155	RES-CF 1/2W J 100R SMALL -AT-
R41	4050110155	RES-CF 1/2W J 100R SMALL -AT-
R43	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R45	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R46	4180215255	RES-FUSIBLE 1/2W J 15K -AT-
R47	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R48	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R49	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R4A	4050547255	RES-CF 1/4W J 4.7K -AT- SMALL
R4H	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R50	4050522155	RES-CF 1/4W J 220R SMALL -AT-
R51	4050533255	RES-CF 1/4W J 3.3K -AT- SMALL
R53	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R6	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R60	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R61	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R62	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R63	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R7	4050510155	RES-CF 1/4W J 100R -AT- SMALL
R72	4322209005	FERRITE BEAD 2UH
R73	4322209046	FERRITE BEAD 2UH -AT-
R74	4050533055	RES-CF 1/4W J 33R -AT- SMALL
R75	4050533055	RES-CF 1/4W J 33R -AT- SMALL
R77	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R78	4050556255	RES-CF 1/4W J 5.6K -AT- SMALL
R79	4050518255	RES-CF 1/4W J 1.8K -AT- SMALL
R7A	4050516255	RES-CF 1/4W J 1.8K -AT- SMALL
R7B	4257042001	RES-PR MF 1/4W F 2K AT SMALL
R7C	4050510455	RES-CF 1/4W J 100K -AT- SMALL
R8	4050547255	RES-CF 1/4W J 4.7K -AT- SMALL
R81	4050547255	RES-CF 1/4W J 4.7K -AT- SMALL
R83	4050547255	RES-CF 1/4W J 4.7K -AT- SMALL
R83A	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R84	4050547255	RES-CF 1/4W J 4.7K -AT- SMALL
R84A	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R85	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R86	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R87	4050547355	RES-CF 1/4W J 47K -AT- SMALL
R88	4050510555	RES-CF 1/4W J 1M -AT- SMALL
R89	4050510255	RES-CF 1/4W J 1K -AT- SMALL
R8A	4257041002	RES-PR MF 1/4W F 10K AT SMALL
R8B	5406100000	JUMP WIRE 0.6c
R9	4050524455	RES-CF 1/4W J 240K SMALL -AT-

## G790-2 Service Manual

REF.	PART NO.	DESCRIPTION
R90	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R92	4060210115	RES-CC 1/2W K 100R -AT-
R93	4060251315	RES-CC 1/2W K 51K -AT-
R94	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R95	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R96	4050512355	RES-CF 1/4W J 12K -AT- SMALL
R98	4050547955	RES-CF 1/4W J 4.7R SMALL -AT-
SG4	5106152204	SPARK GAP 1.5KV AG-15 P:5mm -R
T1	3340303400	TERMINAL TAB T=0.3mm
T2	3340303400	TERMINAL TAB T=0.3mm
T3	3340303400	TERMINAL TAB T=0.3mm
T4	3340303400	TERMINAL TAB T=0.3mm
ZD40	41205005C1	DIODE ZENER HZ5C15IV AT-
ZD41	41205005C1	DIODE ZENER HZ5C15IV AT-
ZD42	41205005C1	DIODE ZENER HZ5C15IV AT-

### 9.4. Control Board

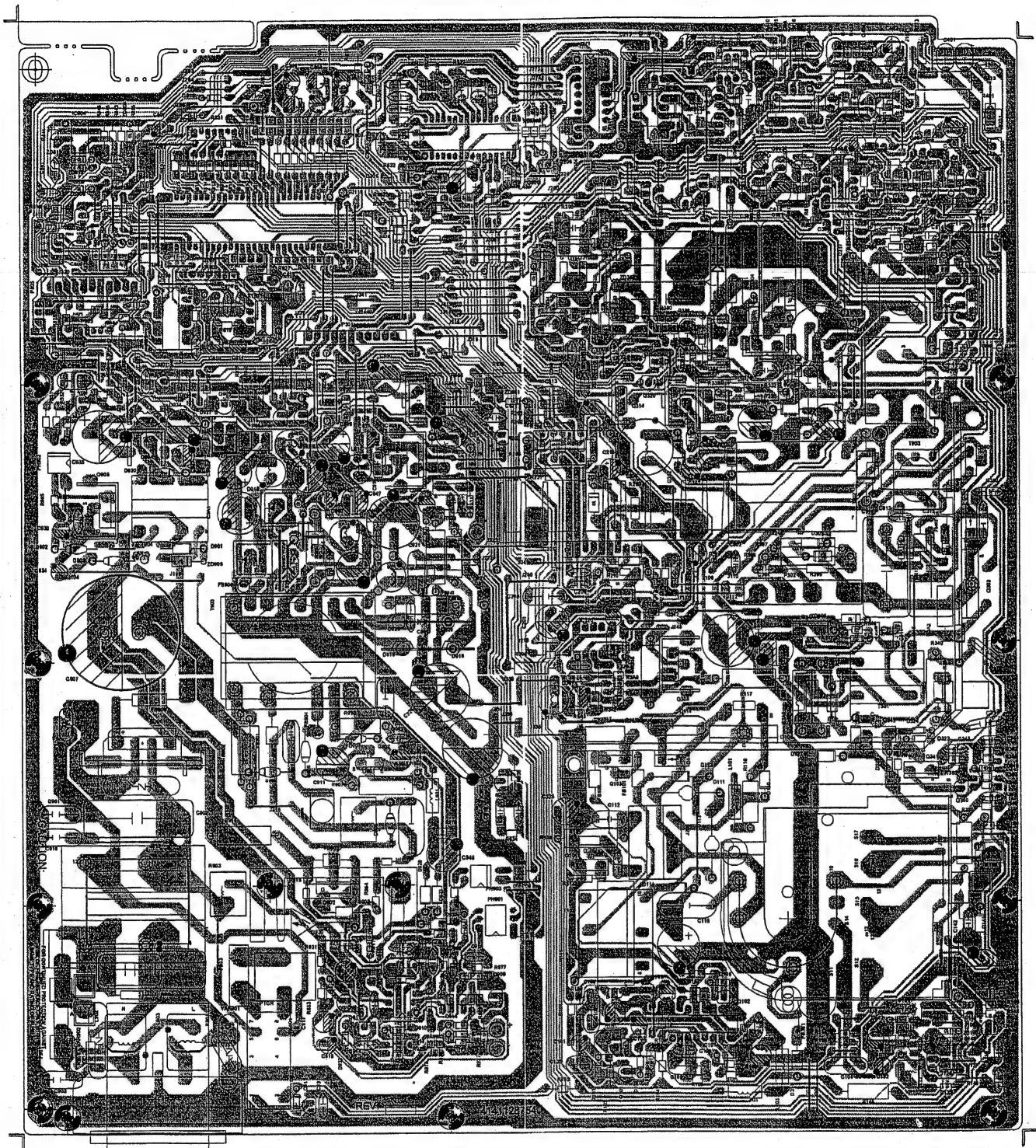
REF.	PART NO.	DESCRIPTION
VO9A2403441	V1	CONTROL PCB ASSY
	3622200009	LED HOLDER FOR LED702
	3622200083	LED HOLDER FOR LED701
	4141134900	P.C.B. CONTROL
	C459730120	GND WIRE ASS'Y 220MM FOR CONTROL PANEL TO U-BKT
	C488101027	CONN. 10P & WIRE ASS'Y W/CORE FOR P806 & P701
C701	7181102552	CAP-COG 1000PFJ 50V -AT-
C702	7181102552	CAP-COG 1000PFJ 50V -AT-
LED701	41206236900	LED:2369:1V/V/G156.3PIN/Y/G
R701	4257041332	RES-PR MF 1/4W F 13.3K AT SMAL
R702	4257049311	RES-PR MF 1/4W F 9.31K SMALL -
R707	4257049311	RES-PR MF 1/4W F 9.31K SMALL -
R708	4050510455	RES-CF 1/4W J 100K -AT- SMALL
R709	4050510455	RES-CF 1/4W J 100K -AT- SMALL
SW701	4410604040	KEYSWITCH TACT SKHHAM2520 1KEY
SW702	4410604040	KEYSWITCH TACT SKHHAM2520 1KEY
SW708	4410604040	KEYSWITCH TACT SKHHAM2520 1KEY
SW709	4410604040	KEYSWITCH TACT SKHHAM2520 1KEY

## Section 6.

# Printed Circuit Boards

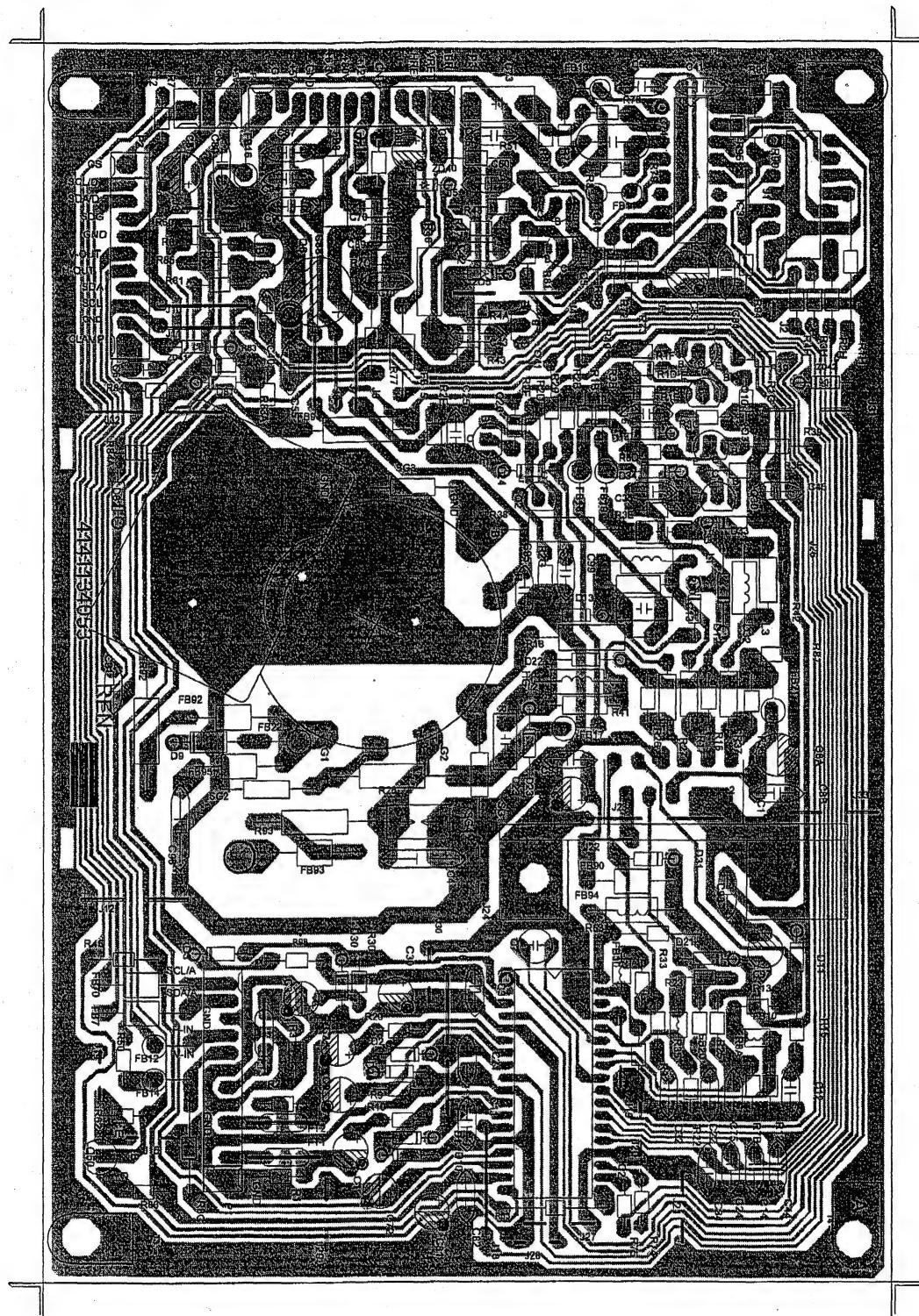
6.1.	Main Board .....	6-1
6.2.	Neck Board .....	6-3
6.3.	Control Board .....	6-3
6.4.	PCB Wiring Connection .....	6-3

## 6.1. Main Board



**Figure 6-1 Main Board (Solder Side)**

## 6.2. Neck Board



**Figure 6-2 Neck Board (Solder Side)**

### 6.3. Control Board

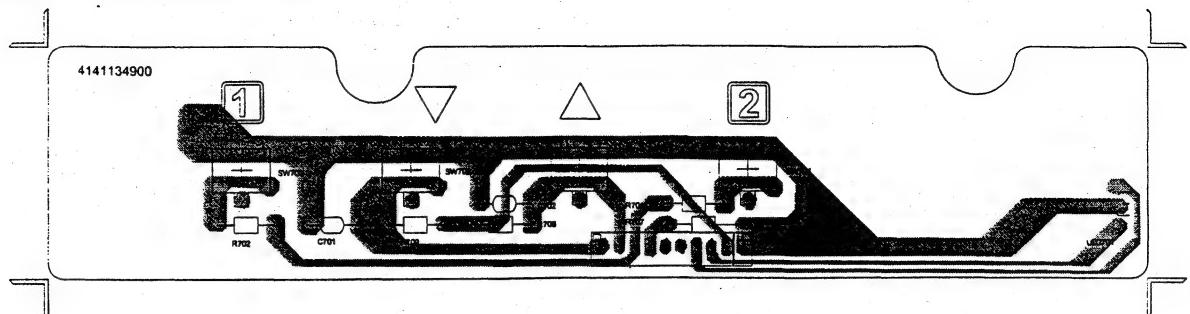


Figure 6-3 Control Board (Solder Side)

### 6.4. PCB Wiring Connection

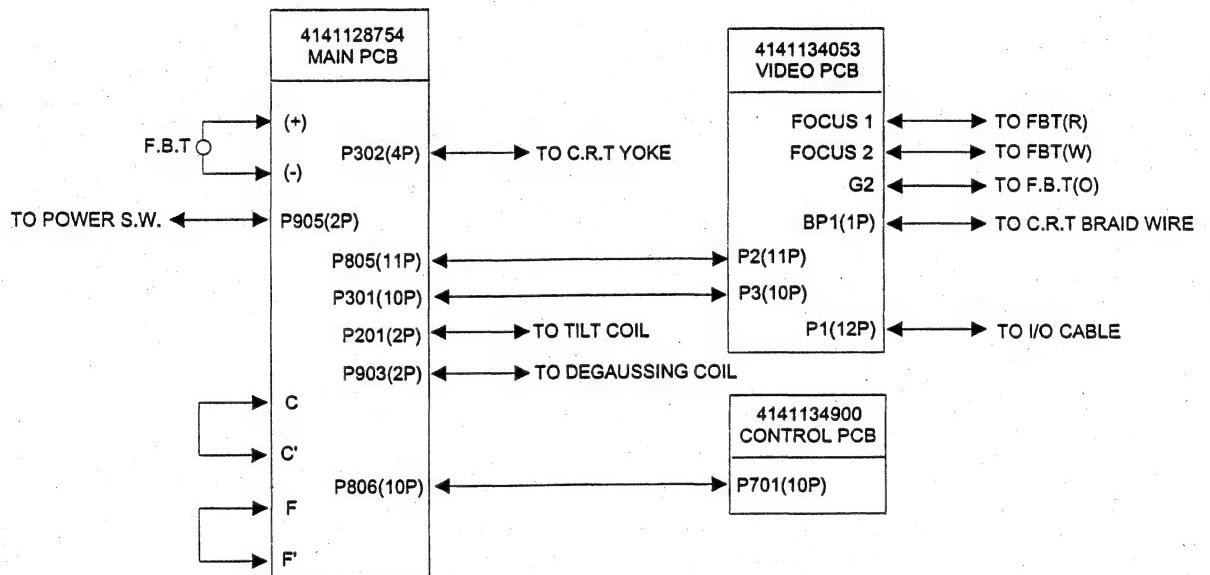
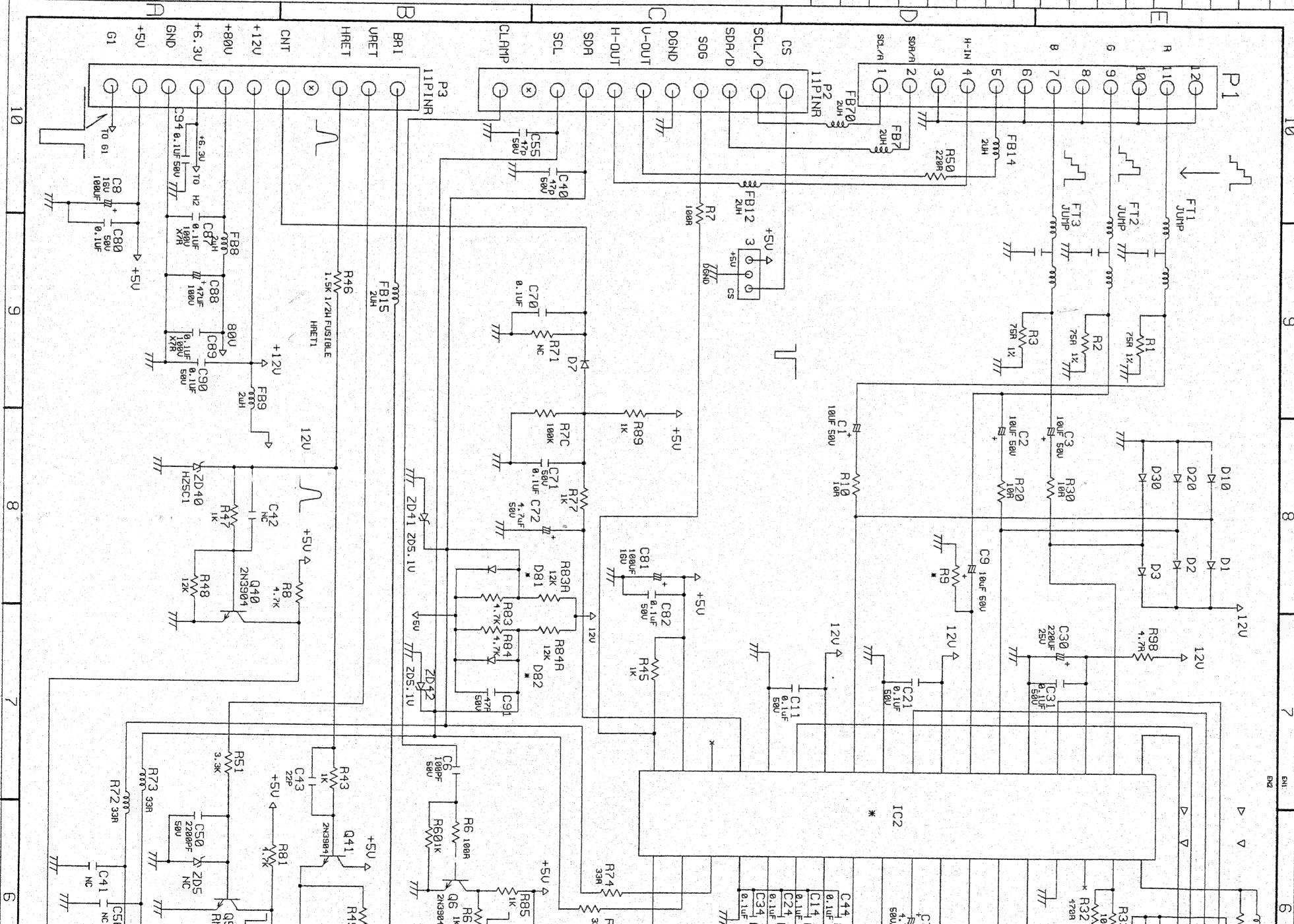


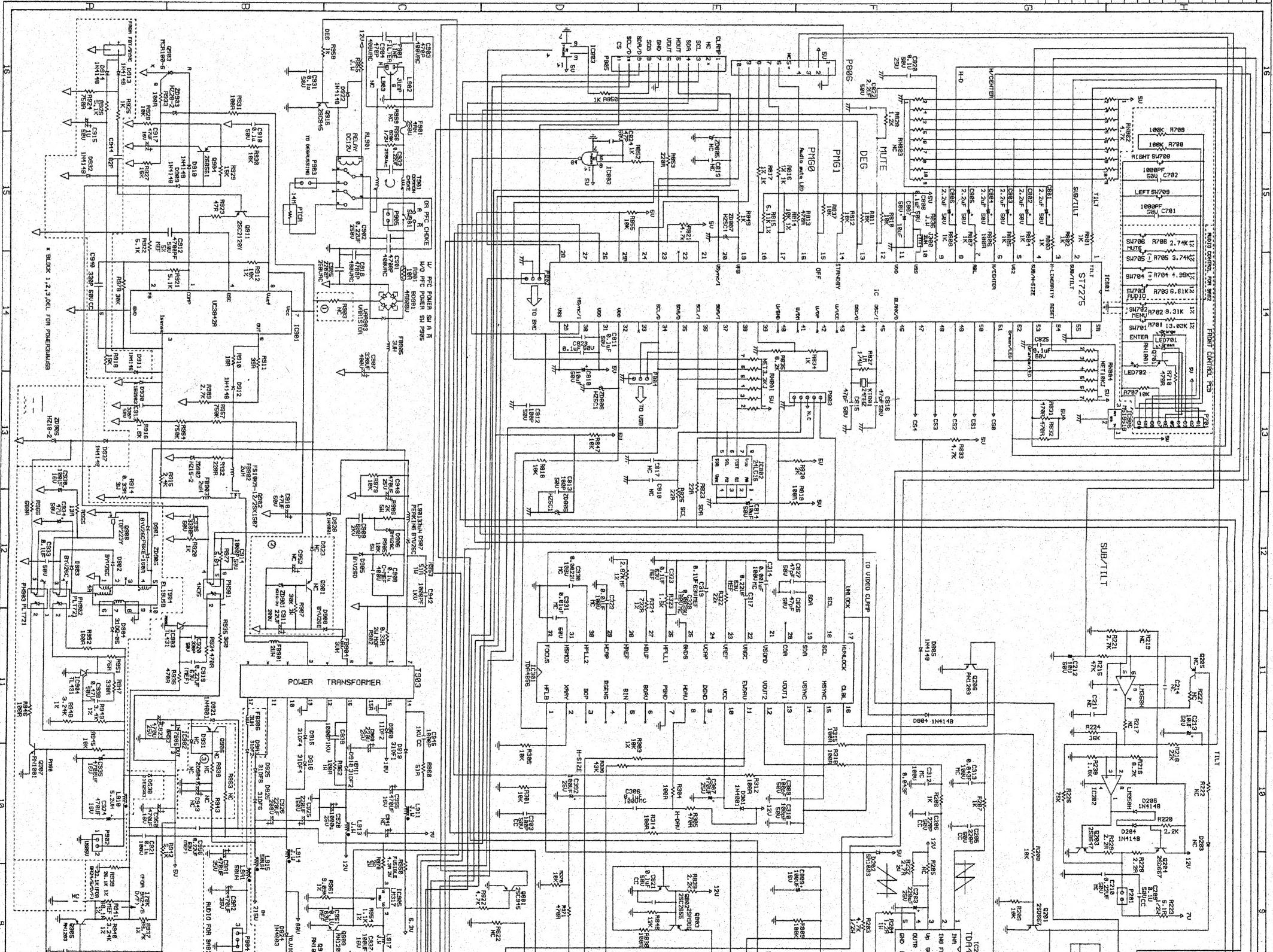
Figure 6-4 PCB Wiring Connection

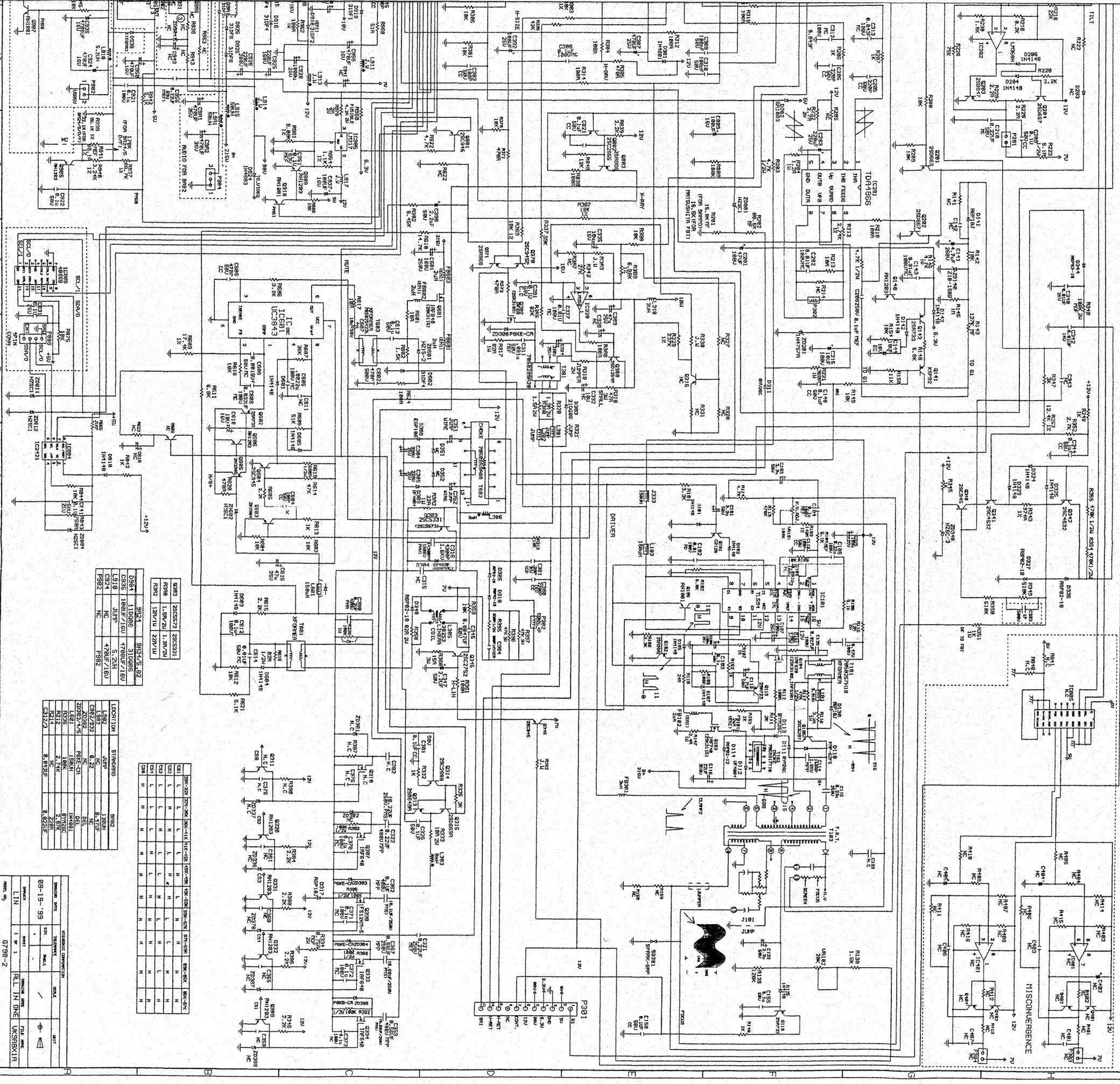
DATE	ECN/ECO NO.
06-18-'98	N-06129809EG
07-22-'98	N-07039803EG
07-23-'98	N-07189801EG
07-29-'98	N-07279804EG
08-12-'98	N-08129801EG
10-01-'98	0-091598C1EP
10-15-'98	0-100898C7EO
11-10-'98	0-102098C1EO
01-06-'99	N-11279803ES
02-09-'99	N-02039901EG
06-07-'99	0-05279901RC
09-14-'99	0-09029903RR
10-14-'99	0-10149901RT





DATE	ECN/ECO NO.
01-06-'99	N-1127980215
01-06-'99	N-1229980016
01-09-'99	0-01059901EP
01-15-'99	0-1230980C1ER
01-22-'99	0-01169901EP
03-20-'99	0-1229980C2H
05-21-'99	0-0529980C2H

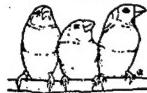




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# ViewSonic® Corporation

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## Service Bulletin

SB # G790-2\_SB\_005

To : Authorized Service Providers	Issue Date: May 22, 2000	ECO # : Nil
Model # : G790-2	Cut-in S/N, S/N Range, or Date: All units affected.	
Subject: Intermittent blanking problem with video.		

### Purpose:

Countermeasure to resolve intermittent blanking of video.

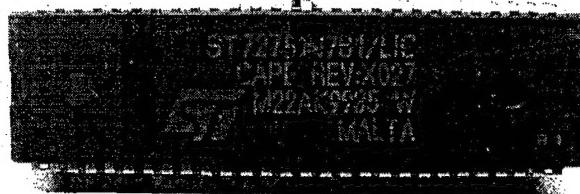
### Service Disposition:

- Recall.
- Unit under service and service inventory.
- Unit under service only.
- Technician judgement for unit under service (symptomatic).

### Change(s)/Countermeasure(s):

Part Location	Part Description	Part Number	Repair Action	Comment	Failure Code
IC801	μC ST72751N7B1/LIC Firmware Rev: X027	E-IC-0401-1847	Replace original μC ST72751N9B1/LCY Rev: X026 with Rev: X027.		VZJ
D804	1N4148		Remove diode from circuit.	This diode is connected to pin #17 of the μC to the blank control circuit.	VZJ

Note to service technician: Verify that every unit utilizes μC with firmware code "REV: X027". If not, implement above countermeasure.



REV: X027

Please contact the Quality Assurance Department at (909) 444-8727 for further information.